The Medicare Case Mix Index Increase

Medical Practice Changes, Aging, and DRG Creep

Grace M. Carter, Paul B. Ginsburg

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PREFACE

In 1984, the Medicare program paid hospitals a higher amount per patient discharge than had been projected, because of a substantial shift in the mix of cases toward those with higher payment rates. This study, prepared for the Health Care Financing Administration, U.S. Department of Health and Human Services, examines what part of that change in measured case mix is due to medical practice changes, what part to a change in the resource needs of patients, and what part to changes in the coding of medical records in response to the incentives of a prospective payment system based on Diagnosis Related Groups (DRG).

The research was conducted at the Rand/UCLA Center for Health Care Financing Policy Research, which is supported through Cooperative Research Agreement 18-C-98489/9-01.

SUMMARY

The Medicare Prospective Payment System (PPS) pays hospitals a fixed amount per discharge. The amount is based on the Diagnosis Related Group (DRG) that the patient is classified into, and other factors. The payment rate for each DRG (often referred to as the "weight") is determined by the resource needs of patients who are thus classified, relative to the needs of other patients. The Medicare Case Mix Index (CMI), which reflects the costliness of the mix of patients, is computed by multiplying the proportion of Medicare patients in each DRG by the DRG's weight.

The CMI for PPS discharges during fiscal year 1984 was 8.4 percent higher than in calendar year 1981, an increase far exceeding the 3.4 percent that the Health Care Financing Administration had projected when it set the payment rates for that year. It had been guided by a legislative provision that outlays should not exceed what would have been paid if the hospital reimbursement provisions of the Tax Equity and Fiscal Responsibility Act of 1982 had been in effect.

The CMI increase could be due to three factors: changes in medical practice, changes in the Medicare inpatient population, and changes in documentation and coding practices by physicians and hospitals. This study attempts to determine the contribution of each category.

Two data bases were employed to investigate the causes of the CMI increase: Medicare bills from calendar year 1981 and fiscal year 1984, and discharge abstract data from the Commission on Hospital and Professional Activities for January 1981 through September 1984. The Professional Activities Study (PAS) data had the advantage of including data for 1982 and 1983 and using forms and procedures that did not change during the period under study; but it had the disadvantage of being a sample of voluntary subscriber hospitals instead of a random sample. Analyses were conducted at the aggregate level, the individual hospital level, and the individual DRG level, and employed regression and other techniques.

Medical practice changes account for only 2.1 percentage points of the 8.4 percent increase in the CMI. Pre-PPS trends in the CMI of 0.5 percent per year accounted for 1.4 percentage points. The trends included an increasing proportion of Medicare discharges for open heart surgery and a declining proportion of discharges for DRGs where outpatient substitution is possible. An acceleration of the latter coinciding with the introduction of PPS explained another 0.7 percentage points of the CMI increase, but virtually all of this was due to declines in admissions for a single DRG—lens procedures.

Aging of the Medicare inpatient population explained none of the increase. Although the average Medicare patient was older in 1984 than in 1981, the CMI does not increase monotonically with age—it peaks for the 70–74 group. The contrast between this pattern and that of monotonic increases, with age, of reimbursements per discharge prior to PPS, suggests that DRGs do not fully capture the relationship between age and resource needs.

Changes in documentation and coding account for the remaining 6.2 percentage point increase in the CMI. This comprises a 2.8 percent increase in the CMI associated with PPS, which excludes the shifts of cases to outpatient settings, and a 3.3 percent increase associated with improved data collection by Medicare.

The finding that coding has been responsible for a large proportion of the CMI increase to date calls for an adjustment of payment rates to reflect this, but the question of whether "DRG creep" is a serious problem cannot be answered at this point. Medicare expected an increase in the CMI associated with PPS, because more complete information tends to move patients into higher-weighted DRGs. Further experience will determine whether the CMI increase occurring to date is a one-time adjustment to an environment in which thorough coding is encouraged, or a phenomenon of continual inflation in the CMI caused by aggressive coding practices.

ACKNOWLEDGMENTS

Many of our Rand colleagues made important contributions to this study. Sally Trude produced the analytical files from the Medicare claims data that were the basis for much of the research. George Goldberg, M.D., made many contributions to the DRG-level analysis from his clinical perspective. Joseph Newhouse gave us valuable advice throughout, and Arleen Leibowitz contributed extremely helpful comments on an earlier draft. Will Harriss carefully edited the manuscript, and Janet D'Amore typed with skill and dedication the numerous drafts.

We are grateful to the staff of the Commission on Hospital and Professional Activities, and especially to James Chesney and Richard Ament, for preparing the PAS data files for analysis.

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I. INTRODUCTION

The Medicare Case Mix Index (CMI) reflects the costliness of a hospital's Medicare patient mix. The costs are based on the Diagnosis Related Group (DRG) that each patient is classified into, and the weight that Medicare has applied to each DRG to reflect patients' relative costs. For Medicare patients for whom payment was made under the Prospective Payment System (PPS) in states not waived from the Medicare reimbursement system, the CMI for fiscal year 1984 was 8.4 percent higher than in calendar year 1981. Since the calculations of budget neutrality that underly the PPS rates for 1984 assumed that the CMI would increase by only 3.4 percent, Medicare paid 4.9 percent more per PPS admission in that year than had been planned.

To guide the Health Care Financing Administration (HCFA) in how to deal with the unexpectedly large increase in the CMI, we undertook a study of the components of the increase. We sought to assess what part of the increase was due to changes in coding practices, what part to changes in medical practices, and what part to changes in Medicare patients' resource needs due to aging.

We used two extensive data bases on hospital services for Medicare enrollees: Medicare claims files maintained by HCFA, and hospital discharge abstract data collected by the Commission on Professional and Hospital Activities (CPHA). CPHA is a private organization that prepares reports for its subscriber hospitals that enable them to compare themselves with their peers on dimensions such as length of stay and certain indicators of quality. We conducted analyses with files at three levels: the hospital system, the individual hospital, and the individual DRG.

The remainder of this section discusses possible explanations for the increase in the CMI, and describes the two data bases. Section II examines the CMI change at a system-wide level. It presents descriptive data that document the increase in the CMI over the three-year span, and then examines the role of aging of the Medicare population in CMI changes during this period. The bulk of Section II describes a series of regression models that focus on separating the 1981–1984 increase in the CMI into a component reflecting continuation of trends prior to PPS versus shifts coinciding with PPS. One of the models also examines differences in PPS effects by hospital type.

Section III changes the focus from the CMI to changes in the proportion of discharges in individual DRGs and groups of DRGs. This

more detailed analysis sheds additional light on the roles played by coding changes versus medical practice changes. Finally, Section IV recapitulates the results of the sorting of the increase in the CMI into components, and discusses the implications for policy.

EXPLANATIONS FOR CMI INCREASE

The CMI increase could have been due to coding changes, medical practice changes, and changes in patients' medical needs. Two aspects of coding changes could have been at work: inconsistencies between the data base used to measure the 1981 value of the CMI and that used for the 1984 value, and changes in the practices of hospitals and physicians in documentation and coding.

The 1981 and 1984 data bases—MEDPAR and PATBILL—were constructed differently. MEDPAR, a research file that was used to calculate the weights (relative costs) for each DRG, was constructed from a sample of bills for payment under the prior cost reimbursement system. Based on a 45-word narrative written by the hospital, HCFA coded the principal diagnosis, the first surgical procedure listed, and indicators of the presence of additional diagnoses or surgical procedures. The DRG was then assigned from these codes and the beneficiary's age, sex, and where the patient was discharged to.

PATBILL—the 1984 file— was also constructed from Medicare bills, but since the form was changed, substantially more information was available to classify patients into DRGs. The physician discharging the patient determined the principal diagnosis, which was translated to ICDM-9 code by the hospital's medical records personnel, rather than by HCFA. Based on study of the medical record, up to four secondary diagnoses indicating substantial complications or comorbidities could be listed, as could up to three major procedures. Since the amount of payment was based on the information on the bills in 1984, but not in 1981, the accuracy of the former is likely to be much greater.

In addition to the discrepancies between the two Medicare data bases, the CMI is likely to have been affected by changes in coding practices within hospitals. With reimbursement now dependent on classification of patients into DRGs, more attention is likely to be paid to physician documentation on the medical record of diagnoses and procedures, and to the coding of this information from the medical record onto the bill that is submitted to the Medicare intermediary. Since the presence of additional diagnoses and procedures tends to change patient classifications toward higher-weighted DRGs, increased thoroughness in documentation and coding is likely to increase the CMI.

Changes in hospital coding practices could go beyond more thoroughness, however. A wealth of information is being offered to hospitals explaining how to code to maximize reimbursement under the DRG system. Many of these suggestions focus on coding decisions that are subject to considerable judgment, and point out the reimbursement implications of all of the possible outcomes. Coding practices aimed at maximizing reimbursement would also increase the CMI, but are difficult to separate from simple thoroughness.

Changes in medical practices can affect the CMI in several ways. The development and diffusion of new procedures affect the proportion of discharges in specific DRGs. For example, increasing use of coronary artery bypass surgery and angioplasty increases the proportion of discharges classified into DRGs 106, 107, and 108. Such a trend increases the CMI over time, since these DRGs have weights much higher than the average for both all DRGs and other DRGs that the bypass patients might have been classified into had they been admitted for alternative treatments. In contrast, increasing use of lens procedures (DRG 39) lowers the CMI, since the weight for that DRG is relatively low. While PPS might have affected the CMI through changes in these trends, most of the changes between 1981 and 1984 in the CMI due to increasing use of major new procedures are likely to have been independent of PPS.

Changes in the location of treatment can affect the CMI. The rise in outpatient surgery tends to increase the CMI, since those patients no longer hospitalized would have been classified into DRGs with lesser weights. Any PPS impacts on the CMI through this mechanism would depend upon whether this trend in medical practice was speeded up or retarded by the incentives of PPS reimbursement and the actions of Peer Review Organizations (PRO).

Finally, aging of the population of Medicare inpatients may affect the CMI. It is well known that the Medicare population is aging, and older beneficiaries may tend to be in higher-weighted DRGs. But the population of Medicare *inpatients* may be aging faster than the *enrollee* population. With the implementation of the working aged provisions of the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA), many of those working Medicare enrollees aged 65–69 that elect to have their employment-based health plan as the primary payer would not be classified as Medicare inpatients.[1]

[1]Another factor behind the aging of the Medicare inpatient population is the shift of some cases to outpatient settings. Presumably, this is more likely to affect younger beneficiaries, so the remaining Medicare inpatient population will have aged more. But the effects of such a phenomenon will already have been taken account of in the context of changes in the location of service.

DATA SOURCES

Two major data bases on Medicare enrollees' inpatient episodes were used in this study: information from hospital bills that come to HCFA through its intermediaries, and discharge abstract data sent to CPHA from its subscriber hospitals. The latter data base is known as the "Professional Activity Study" (PAS).

Medicare Data

We used two different Medicare files for 1981 and 1984: MEDPAR and PATBILL.[2] We do not describe the MEDPAR file here, since it has been used extensively by researchers for some time (see, e.g., Pettengill and Vertrees, 1982.)

The information on fiscal year 1984 discharges came from a file constructed by Rand; it contained records from a 20 percent sample of bills for that year that HCFA had received through the middle of December 1984.[3] Although more than 90 percent of bills for 1984 discharges were available to us, we had to adjust for the fact that bills taking the longest to reach HCFA differ noticeably from the average bill. To deal with this problem, Rand has developed a "backcasting" model for HCFA to adjust for these differences.[4] Applying this model to the 1984 data, we made only small adjustments in the CMI for the first three quarters, which were close to complete, but added 0.0043 to the CMI for the fourth quarter. Overall, backcasting increased the estimate of the CMI for PPS discharges in 1984 from 1.1309 to 1.1336.

Professional Activity Study (PAS) Data

PAS is the oldest and largest computerized data system for medical record information in the United States. The patient abstract records submitted to CPHA by hospitals contain demographic and diagnostic data including such items as the patient's age, sex, race, date of admission, hospital service, admission diagnosis, principal diagnosis, additional diagnoses, and principal and other operative procedures. Since 1979, all diagnoses and procedures have been coded in *ICD-9-CM* form. Hospitals also submit information on the expected source of payment.

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[2]The MEDPAR file is also available for calendar year 1982. We did not make use of it for this study because it was of lower quality than the 1981 file. A higher proportion of discharges did not have a DRG assigned.

[3]We used the same sampling algorithm that HCFA used in drawing the sample of bills for MEDPAR.

[4]Unfortunately, a published description of this model is not yet available.

This study used data from all PAS hospitals that began participation in PPS during fiscal year 1984 and that sent CPHA complete patient data continuously during the January 1981 through September 1984 period. Only records listing Medicare as the expected principal source of payment were used. This left a panel of 705 short-term, general care hospitals that supplied records on 5,942,317 Medicare discharges.

For this study, the PAS data have two advantages over the Medicare claims files. First, the collection and editing procedures did not change during the period studied. This means that changes in case mix observed over time will not be influenced by changes in the collection instrument, as is the case for Medicare data. Second, PAS data are available with no interruption throughout the 1981–1984 period. This facilitates separating shifts in case mix coinciding with the beginning of PPS from underlying prior trends.

The disadvantage of PAS is that it applies to a sample of voluntary subscriber hospitals instead of a random sample of hospitals, although in seven states CPHA obtains data on all hospitals through data exchange processing agreements with statewide associations.

The panel of hospitals used in this study is generally representative of hospitals that participate in the Medicare program. Table 1 compares the characteristics of the panel with the MEDPAR universe of nonfederal acute care hospitals that are covered by Medicare's Prospective Payment System (PPS).[5] The most significant discrepancies are an underrepresentation of small hospitals, of hospitals in the South, of government hospitals, and of investor-owned hospitals. The most problematic is the proportion of investor-owned hospitals, since the number represented in the panel is so small that it is probably not possible to draw inferences concerning differences in the CMI increase for this group compared with other ownership groups. The possibility that most of the investor-owned hospitals in the panel are part of the same chain is also a matter for concern.

To examine differences between the panel and the universe that are not explained by hospital type and that might be relevant to this study of the CMI, we regressed each hospital's MEDPAR CMI on the hospital type variables listed in Table 1 and a binary variable for whether the hospital was in the PAS panel. As shown in Table 2, after adjustment for hospital type, PAS hospitals had a CMI in 1981 that averaged 1.0 percent higher than that of otherwise similar hospitals.

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[5]Hospitals in the four waivered states—New York, New Jersey, Massachusetts, and Maryland—are excluded from this comparison.

Table 1

COMPARISON OF PAS PANEL WITH UNIVERSE OF COMMUNITY HOSPITALS, 1981

	PAS		Universe		
Item	No.	%	No.	%	PAS/Universe
Location					
Urban	377	53.5	2330	47.7	.162
Rural	328	46.5	2559	52.3	.128
Total	705	100.0	4889	100.0	.144
Teaching status					
No teaching	573	81.3	4230	86.5	.136
Minor teaching	117	16.6	572	11.7	.205
Major teaching	15	2.1	87	1.8	.172
Control					
Government	151	21.4	1587	32.5	.095
Private nonprofit	519	73.6	2666	54.5	.195
Investor-owned	35	5.0	636	13.0	.055
Number of beds					
1-99	286	40.6	2541	52.0	.113
100-299	161	22.8	1024	20.9	.157
200-299	101	14.3	538	11.0	.188
300-499	116	16.5	545	11.1	.213
500+	41	5.8	241	4.9	.170
Region					
Northeast	52	7.4	346	7.9	.150
North Central	320	45.4	1617	33.1	.198
South	173	24.5	1927	39.4	.090
West	160	22.7	999	20.4	.160

NOTE: Table excludes hospitals in waivered states.

Though small, such a difference could affect this analysis. It might reflect PAS hospitals coding more accurately than other hospitals in that year. This could be a combination of hospitals taking more care with coding in the first place, because they are interested in reports from CPHA, and the results of the training that CPHA gives to medical records technicians at participating hospitals.[6] If more accurate coding explains an important part of this difference, this means that effects of PPS on coding that are measured with PAS data could be

[6]Since MEDPAR was not built from hospital coding of diagnoses and procedures, but from a diagnostic narrative included on the bill, the effects of better coding would have to have improved this narrative for this explanation of the regression coefficient to be correct.

understated somewhat. That is, if the PAS hospitals already coded more accurately prior to PPS, they might have a smaller increase in their CMIs as a result of PPS-induced attention to accuracy.

To test this hypothesis, we ran the model just described with 1984 data, including variables for the quarter in which the hospital began PPS (Table 2). The coefficient for the PAS variable fell from 0.0099 in 1981 to 0.0032 in 1984, and was no longer statistically significant. This substantial narrowing of the difference between PAS hospitals and others is likely to reflect differential changes in coding. While we cannot rule out other unspecified variables, a diminished difference in coding abilities is the most likely explanation for the difference between the 1981 and 1984 coefficients. Translating the CMI

Table 2

REGRESSION OF CMI ON HOSPITAL TYPE, PAS STATUS, 1981, 1984

	1981			1984		
Variable	Coefficient	Standard Error	Significance Level	Coefficient	Standard Error	Significance Level
PAS Panel	0.010	0.005	0.04	0.003	0.004	N.S.
Teaching status			0.0001			0.0001
No teaching	−0.135	0.014		−0.068	0.010	
Minor teaching	−0.124	0.014		−0.057	0.010	
Major teaching	0.000	c.g.		0.000	c.g.	
Control			N.S.			0.0001
Government	0.002	0.006		−0.004	0.004	
Private nonprofit	0.007	0.006		0.013	0.004	
Investor-owned	0.000	c.g.		0.000	c.g.	
Number of beds			0.0001			0.0001
1–99	−0.128	0.010		−0.190	0.007	
100–299	−0.078	0.010		−0.135	0.007	
200–299	−0.055	0.010		−0.099	0.007	
300–499	−0.021	0.010		−0.065	0.007	
500+	0.000	c.g.		0.000	c.g.	
Rural Location	−0.022	0.004	0.0001	−0.034	0.003	0.0001
Region			0.0001			0.0001
Northeast	−0.012	0.005		−0.032	0.004	
North Central	−0.036	0.008		−0.042	0.004	
South	−0.062	0.005		−0.052	0.004	
West	0.000	c.g.		0.000	c.g.	
PPS Start						0.0001
1983: IV				0.024	.003	
1984: I				0.012	.003	
1984: II				0.009	.005	
1984: III				0.000	c.g.	
Intercept	1.276	0.016	.0001	1.304	0.011	0.0001

SOURCE: CY1981 MEDPAR and FY1984 PATBILL Files.

NOTE: Based on 4877 (1981) and 4892 (1984) hospitals: R^2 = 0.23 (1981) and 0.44 (1984); c.g. = comparison group.

difference between PAS and non-PAS hospitals into percentage terms, and taking into account the fact that our PAS panel comprises roughly one-seventh of the PPS universe, we estimate that time-series analysis of PAS data will understate the effect of PPS on the CMI by 0.6 percentage points.

II. CMI-LEVEL ANALYSES

This section reports on a series of analyses conducted at the CMI level (as opposed to the DRG level). The first subsection documents the CMI increase from 1981 to 1984. The second calculates the role of aging of the Medicare inpatient population. The third uses a variety of methods to decompose the CMI increase into pre-PPS trends in the CMI and shifts associated with PPS. The PAS data are best suited to measuring pre-PPS trends because of the continuous time series available, but the Medicare data are particularly useful in investigating differences during 1984 between hospitals on PPS and those not yet under the program, and among hospitals with different amounts of PPS experience.

MAGNITUDE OF CMI INCREASE

We estimate that the Medicare CMI increased 8.4 percent from calendar year 1981 to fiscal year 1984 (see Table 3), exceeding somewhat HCFA's estimate for this period.[1] Most of the difference is explained by the 1981 base, where we have excluded discharges from hospitals in waivered states. Most of the rest is due to the "backcasting" adjustment for 1984 that was described above.[2] Table 3 shows the substantial difference between the CMI for 1984 discharges under PPS and those occurring during that year but before the hospital came under PPS.[3] The 8.4 percent figure is obtained by dividing the 1984 CMI for PPS discharges by the 1981 CMI for discharges in nonwaiver states.[4]

AGING OF POPULATION OF MEDICARE INPATIENTS

To estimate the effect of aging of the inpatient population, we used the Medicare data to calculate the CMI by age group and the propor-

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[1]Recent estimates from HCFA, which cover fiscal year 1985 experience as well, are higher, since the CMI has continued to increase.

[2]A much smaller difference is the result of techniques for editing the MEDPAR file. For those discharges lacking a DRG, we assigned a weight equal to the average of those cases discharged from that hospital in that month.

[3]This comparison does not adjust for differences in hospital type. A regression analysis, described below, does this.

[4]Exempted hospitals, such as rehabilitation and psychiatric hospitals, are excluded.

Table 3

MEDICARE CASE MIX INDEX: 1981, 1984

Calendar year 1981 (MEDPAR)	1.046
Fiscal year 1984 (PATBILL)	1.120
Discharges prior to PPS	1.103
PPS discharges	1.134

SOURCE: Medicare data, excludes waiver states and exempted hospitals.

tion of Medicare discharges in each age group in 1981 and 1984. As a check, we calculated the CMI by age group with both 1981 data and 1984 data.

As shown in Table 4, aging did not affect the CMI. Using CMIs by age group from 1981 data, the 1984 age distribution would have resulted in a 1981 CMI of 1.0490, close to the actual 1981 CMI of 1.0486.[5] Similarly, the 1981 age distribution would have resulted in a 1984 CMI of 1.1183, close to the actual 1984 CMI of 1.1181.

The fact that the CMI does not increase monotonically with age accounts for this somewhat unexpected result. The CMI rises with age throughout the younger age groups, but peaks at 70–74 and then declines. This contrasts with Medicare data from the pre-PPS period,

Table 4

AGE OF MEDICARE INPATIENTS AND THE CMI

	1981		1984	
Age Group	Percent	CMI	Percent	CMI
<65	11.91	1.0356	11.30	1.1063
65–69	22.45	1.0386	21.17	1.1233
70–74	21.61	1.0633	21.05	1.1404
75–79	18.55	1.0511	19.41	1.1176
80–84	13.69	1.0444	14.43	1.0972
85+	11.78	1.0555	12.65	1.1065
Total	100.00	1.0486	100.00	1.1181

SOURCE: Medicare data, nonwaiver states.

[5]The slight differences between the CMIs in Table 4 and those in Table 3 are due to cases with missing DRGs. The hospital-level files underlying Table 3 include estimates of the missing values. Adjustments for missing values could not be made for Table 4, which is based on a discharge file instead of a hospital file.

which show a monotonic increase with age in average reimbursements per discharge (Table 5). The fact that the CMI does not reflect this pattern suggests that DRGs do not fully measure the increased resource needs of older Medicare patients. This implies that hospitals with a disproportionate share of the oldest Medicare patients will tend to be underreimbursed, and all hospitals will have an incentive to avoid treating such patients.

TIME PATTERN OF CMI INCREASE

The analyses in this section attempt to separate the increases in the CMI that are associated with the introduction of PPS from those that reflect pre-PPS trends. Analyses with both data bases indicate that a large proportion of the increase was associated with PPS. This is shown in Fig. 1, which plots quarterly estimates of the CMI from PAS data. The graph shows the steady increase in the CMI through the third quarter of 1983, and the sharp departure from trend that coincided with the implementation of PPS in the fourth quarter of 1983.

Table 5

MEDICARE REIMBURSEMENTS PER DISCHARGE, BY AGE, 1979

(In dollars)

Age	Reimbursements per Discharge
All 65+	1889
65–66	1778
67–68	1796
69–70	1822
71–72	1854
73–74	1894
75–79	1918
80–84	1969
85+	1981

SOURCE: Medicare and Medicaid Data Book, 1983, p. 57.

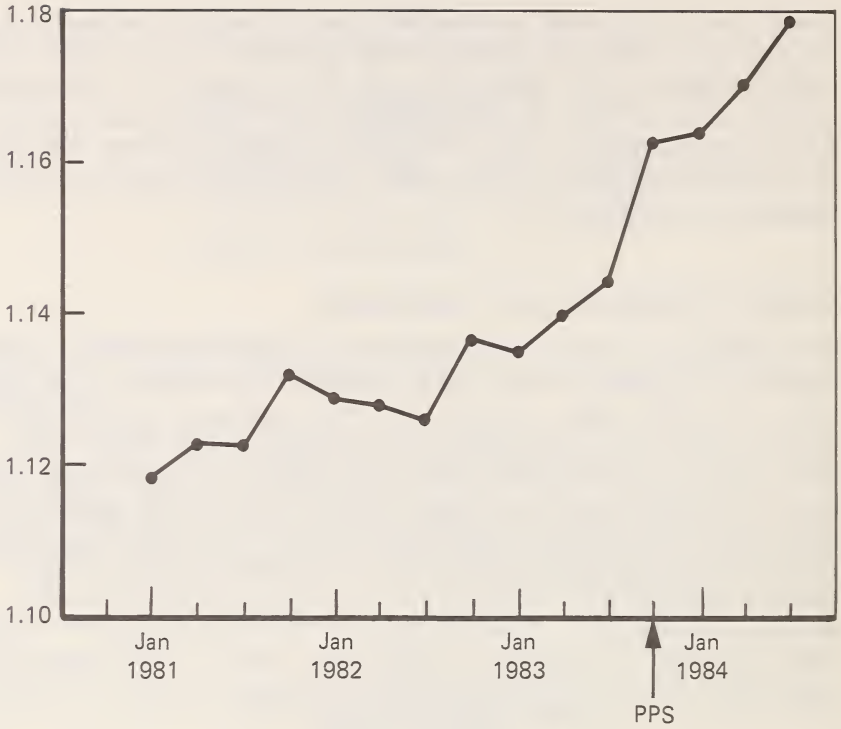

Fig. 1—CMI over time (from PAS)

Pre-PPS Trend

To estimate the magnitude of the pre-PPS trend, we fitted a regression with quarterly data from the PAS panel of 705 community hospitals (Table 6). The dependent variable is based on the ratio of the current CMI to that from the January 1981 quarter. This allows each hospital to be its own control. The model accounts for trends prior to PPS by including a linear trend that varies by hospital type. Seasonal variation affects the CMI and is captured by four seasonal indicators that vary by census division.

The remaining variables in the model are intended to capture the timing of the PPS-induced increase in the CMI and will be discussed in the subsection after next.

This regression, and the ones estimated on the Medicare data, are weighted. In this case each observation's weight is proportional to the number of Medicare discharges in that hospital quarter.[6]

[6]The weights sum to the number of observations in each regression.

Table 6

REGRESSION OF THE LOG (CMI) IN A HOSPITAL-QUARTER MINUS THE LOG (CMI) FOR THE SAME HOSPITAL IN THE FIRST QUARTER OF CY1981

Variable	Coefficient	Standard Error	Significance Level
April–June 1983 indicator	0.0039	0.0022	0.08
July–Sept 1983 indicator	0.0084	0.0022	0.0002
FY1984 indicator	0.0111	0.0023	0.0001
On PPS during quarter	0.0149	0.0020	0.0001
Number of quarters on PPS	0.0022	0.0018	0.03
Trend for base case	0.0105	0.0018	0.0001
Trend by teaching status			0.0001
No teaching	−0.0025	0.0011	
Minor teaching	−0.0042	0.0011	
Major teaching	0.0000	(c.g.)	
Trend by 500 or more beds	0.0053	0.0006	0.0001
Trend by urban location	−0.0001	0.0005	N.S.
Trend by division			0.0001
New England	−0.0117	0.0019	
Mid-Atlantic	−0.0047	0.0027	
South Atlantic	−0.0022	0.0015	
East North Central	−0.0068	0.0013	
East South Central	−0.0121	0.0026	
West North Central	−0.0002	0.0018	
West South Central	0.0001	0.0025	
Mountain	0.0036	0.0021	
Pacific	0.0000	(c.g.)	

SOURCE: PAS.

NOTE: Based on 9,869 hospital quarters. $R^2 = 0.152$; c.g. = comparison group. The regression also contains 36 coefficients for the four seasons in each of the 9 census divisions. These results are available from the authors.

In the case of the regression on Medicare data, each observation's weight is proportional to the number of Medicare discharges in that hospital in the calendar year 1981 quarter.

Two factors made weighting desirable. First, weighting reduces the variance of the estimate. Some hospitals had very few Medicare discharges in a quarter, especially in the Medicare samples of 20 percent of discharges. By giving a lower weight to those hospitals in which sampling error will be more severe, we improve the precision of the estimates. Second, though the observations are CMIs for hospitals, our interest is in the typical Medicare patient discharged. By weighting in this manner, the results on factors associated with the increase in the CMI apply to the average Medicare patient.

The trend-variable coefficients give the pre-PPS, seasonally adjusted, annual rates of increase in the CMI by type of hospital. Each coefficient is approximately equal to the fraction by which the CMI is changed by a unit increase in the variable.[7] The variable labeled "trend for base case" gives the trend in the type of hospital that is the default for all the other variables—namely, major teaching hospitals in rural locations with fewer than 500 beds in the Pacific census division. The remaining trend interaction coefficients show how the trend changes with differences in each hospital characteristic after controlling for all other hospital characteristics. Thus hospitals without any teaching, and hospitals with only minor teaching responsibilities, had smaller pre-PPS trends than major teaching hospitals. Hospitals with more than 500 beds had larger trends than smaller hospitals. In exploratory analyses, we found no differences among hospitals due to type of control. This may be due, however, to the small number of investor-owned hospitals in this sample.

We estimated the average value of the pre-PPS trend by calculating the weighted average of the trend coefficients for each type of hospital. The weights used were the proportion of Medicare patients discharged from that hospital type in FY1984, and were taken from our PATBILL file. We estimate that prior to PPS, the CMI was increasing at an annual rate of 0.50 percent. If this trend had continued, the CMI for FY1984 would have been only 1.38 percent higher than the CMI for CY1981. The remainder of the 8.4 percent CMI increase was due to the combination of the change in data bases from MEDPAR to PATBILL, and to changes that coincided with—and most probably were induced by—PPS implementation.

PPS Effects: Medicare Data

A descriptive analysis with the Medicare data shows, dramatically, the effects of hospitals' beginning PPS. Table 7 lists the percentage increases in the CMI from the corresponding quarter in 1981. The data are organized by the quarter in which the hospital began PPS.

Three important results appear in Table 7. First, substantial increases in the CMI are observed during the quarter in which hospitals first come under PPS. For example, those hospitals beginning PPS during the October quarter (most of them October 1, 1983) had a 7.8 percent increase during the period between that quarter and the corresponding quarter of 1981. In contrast, those hospitals entering

[7]The exact formula is that exp(coefficient) = 1 + fraction increase in the CMI. In the range of these coefficients, the given approximation is quite good.

PPS during the following quarter had only a 4.2 percent increase in the CMI from the October 1981 quarter to the October 1983 quarter.

Second, hospitals appear to have an increase in their CMI preparatory to their entering PPS. For example, those hospitals entering during the July quarter had a larger increase from 1981 during their April 1984 quarter than during their January 1984 quarter.

Third, increases in the CMI seem to grow with each additional quarter of experience under PPS. Note the pattern for hospitals on PPS during the January 1984 quarter.[8] During each successive quarter, the CMI increase from the corresponding quarter in 1981 was larger.

A regression model with the Medicare data confirms the descriptive findings in Table 7. Merging the 1981 and 1984 files and using the hospital quarter as the unit of observation, we regressed the percentage difference in the hospital's CMI between fiscal 1984 and the corresponding quarter in calendar 1981 on a series of variables for hospital type and PPS status (see Table 8). The hospital type variables are teaching status (as defined by interns and residents per bed), ownership, census division, number of beds, and urban or rural location. The PPS-status variables include a binary variable for whether the hospital was under PPS reimbursement during that quarter and one for the number of quarters on PPS. In addition, dummy variables for each quarter are entered, to adjust for the October quarter difference spanning only two years.

The results show a sharp increase in the CMI associated with being on PPS. After hospital type is held constant, those hospitals on PPS

Table 7

TIME PATTERN OF CMI INCREASE: PERCENT CHANGE 1981 TO 1984

Discharge Quarter	Quarter in Which Hospital Entered PPS			
	Oct–Dec	Jan–Mar	Apr–June	July–Sept
Oct–Dec[a]	7.7	4.2	3.5	3.3
Jan–Mar	8.3	7.5	5.1	4.1
Apr–June	9.8	8.8	7.7	6.1
July–Sept	11.2	10.0	10.0	9.0

SOURCE: Medicare data, nonwaiver states.

[a]Percent change from corresponding quarter spans only two years.

[8]The October quarter data are confounded because the comparison spans only two years, while that for other quarters spans three years.

Table 8

REGRESSION OF THE PERCENTAGE DIFFERENCE IN EACH HOSPITAL'S CMI BETWEEN FY1984 AND CORRESPONDING QUARTER IN CY1981

Variable	Coefficient	Standard Error	Significance Level
On PPS during quarter	2.77	0.20	0.0001
Number of quarters on PPS	0.51	0.11	0.0001
Teaching status			0.0007
No teaching	−1.48	0.41	
Minor teaching	−1.03	0.40	
Major teaching	0.00	(c.g.)	
Type of control			0.0001
Government	0.06	0.30	
Private nonprofit	1.35	0.28	
Investor-owned	0.00	(c.g.)	
Number of beds			0.0001
1–99	−3.33	0.33	
100–199	−2.40	0.29	
200–299	−2.17	0.28	
300–499	−2.08	0.24	
500+	0.00	(c.g.)	
Rural location	−2.14	0.21	0.0001
Census division			0.0001
New England	−1.23	0.48	
Mid-Atlantic (Pa. only)	−3.75	0.36	
South Atlantic	0.79	0.28	
East North Central	−2.20	0.27	
East South Central	−0.03	0.33	
West North Central	4.99	0.32	
West South Central	4.94	0.30	
Mountain	1.77	0.40	
Pacific	0.00	(c.g.)	
Quarter			0.001
Jan–Mar	0.19	0.21	
Apr–June	1.62	0.23	
July–Sept	2.37	0.28	
Oct–Dec	0.00	(c.g.)	
Intercept	6.58	0.52	0.0001

SOURCE: CY1981 MEDPAR and FY1984 PATBILL files.

NOTE: Based on 19,700 hospital quarters that had cases in both files; R^2 = 0.126; c.g. = comparison group.

had a 2.8 percent larger increase in their CMI from the corresponding 1981 quarter than hospitals not yet on PPS. The difference grows over time. The coefficient on the number of quarters on PPS indicates that each additional quarter of PPS experience adds 0.51 percentage points to a hospital's CMI.[9]

In other regressions, not reported in detail here, we explored the shape of the effect of post-PPS quarters on the CMI increase. In one version of the model, we replaced the variable for the number of quarters with three binary variables indicating whether the hospital had been on PPS for two or more quarters, three or more quarters, or exactly four quarters. The collection of three binary variables was statistically significant ($p < .01$), and the coefficients were 0.47, 0.47, and 0.63. Consequently, the linear representation in the specification of Table 8 appears to be a very good fit to the data.

We used these regression results to compute the PPS's effect on the CMI for the entire fiscal year 1984, taking into account the proportion of Medicare discharges that occurred while hospitals were on PPS and the proportion of those occurring while hospitals were on the program two, three, or four quarters. We concluded that PPS induced a 3.3 percent increase in the CMI for PPS discharges for fiscal year 1984.

Now that all hospitals in nonwaivered states have been on PPS for two or more quarters, we would expect the PPS effect for fiscal year 1985 to be substantially larger. If the rate of increase for additional quarters of PPS experience continues, an additional 1.7 percent increase in the CMI would occur between 1984 and 1985. This does not include the effects of pre-PPS trends, estimates for which are discussed below.

Because of the lack of Medicare data for fiscal year 1983, we were not able to estimate increases in the CMI that were associated with TEFRA or were anticipatory to PPS. To the extent that such increases occurred—and the analysis of PAS data described below suggests that they did—the above estimates of the effects of PPS understate their magnitude. This is because the anticipatory effects will have been included in the CMIs for hospitals not yet having begun PPS.

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[9]Correlation between a hospital's CMI in successive quarters means that the t-statistics are overstated somewhat. However, the t-statistics for the PPS variables are so large that we did not bother to make an adjustment.

PPS-Effects: PAS Data

Through the continuous time series that is available, analysis of the PAS data gives us additional insight into the effect of PPS on the CMI. Besides enabling identification of pre-PPS trends, the PAS data permit estimates of increases anticipatory to PPS. Data analysis cannot distinguish whether this reflects a response to the reimbursement system established by TEFRA or changes in coding procedures made in preparation for PPS, which was enacted in April 1983.

The specification of the model estimated with the PAS data was discussed above (see Table 6). The first three variables in Table 6 measure the effect of hospitals preparing for PPS. The first is a binary variable indicating the April 1983 quarter—the first quarter after the enactment of PPS. The coefficient for this variable was very small and not statistically significant. The coefficient for the July 1983 variables shows a substantial increase from the trend, however. Since the coefficient is approximately equal to the fraction by which the CMI is changed by a unit increase in the variable, the July 1983 quarter is estimated to be 0.84 percent higher than it would have been, based on the pre-PPS trend.

The third variable, a dummy for fiscal year 1984, reflects what happened in hospitals during the portion of that year prior to their beginning PPS. The estimates imply that for those quarters, the CMI was 1.11 percent higher than if the pre-PPS trend had continued.

The next two variables measure the post-PPS increase. At entry to PPS, the CMI increased an additional 1.49 percent above the pre-PPS 1984 level (which was itself inflated above the trend). On average, it continued to increase an additional 0.22 percent for each additional quarter on PPS.

Assuming that the increase in the CMI during FY1984 above the pre-existing trend is due to PPS, we calculate from these data that PPS resulted in an increase of 2.9 percent in the CMI for FY1984 PPS discharges. If we then incorporate our estimate that PAS data understate the PPS effect by 0.6 percent, our PAS estimate of the total PPS effect is 3.5 percent. This is reasonably consistent with the 3.3 percent PPS effect calculated from the Medicare data, which we considered an underestimate because of the absence of a way to capture the anticipatory effect.

The details of the timing of the PPS effect appear to differ between the two data sources, however. The PAS data, which show a very large preparatory effect (unmeasurable in the Medicare data), show a smaller increase from additional experience with PPS. A possible explanation is that hospitals participating in PAS were quicker than others to implement improvements in their coding practices.

To test whether different hospital types had relatively larger or smaller PPS effects, we added an interaction of each of the hospital-type variables with the FY1984 variable. (We used this rather than the "on PPS" variable in order to include anticipatory increases.) This specification measures whether some hospital types departed from their specific pre-PPS trends to a greater extent than other hospitals. None of the interactions were significant except for the teaching status variables. Teaching hospitals had a slightly smaller PPS effect than non-teaching hospitals. This result may be a reflection of better coding prior to PPS on the part of the teaching hospitals.[10] Thus, the increase in the CMI associated with PPS was an "across-the-board" phenomenon, not restricted to specific types of hospitals.

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[10]Teaching hospitals had a larger CMI increase between 1981 and 1984, but this was due to a higher pre-PPS trend instead of a larger PPS effect.

III. DRG-LEVEL ANALYSIS

To understand the mechanism of the increasing CMI, we examined which DRGs were increasing in use relative to others. We looked at which major diagnostic categories (MDCs) were responsible for the largest shares of the CMI increase, whether surgical DRGs increased relative to medical DRGs, whether there was a tendency toward the DRGs with complications and comorbidities, and what role was played by shifts to outpatient settings.

METHODOLOGY

Regression analyses related the change in the share of discharges accounted for by each DRG to its pre-PPS trend and to the introduction of PPS. For each DRG, a simple regression model was estimated with quarterly PAS data, in which the dependent variable was the change in the percentage of Medicare discharges in that DRG compared with the corresponding quarter in the previous year. The independent variables were an intercept term and a binary variable for whether PPS was in effect during the quarter. Such a model separated pre-PPS trends in the number of discharges from departures from those trends coinciding with PPS. The results appear in the Appendix.

On the basis of each DRG's two regression coefficients, and its relative weight and its proportion of Medicare discharges, we calculated its contribution to the pre-PPS trend in the CMI and to the shift associated with PPS, as follows. Let:

$$x_k = \textit{contribution of } DRG_k \textit{ to CMI trend}; \text{ and}$$

$$y_k = \textit{contribution of } DRG_k \textit{ to the } 1984 \textit{ shift}.$$

Then

$$x_k = a_k(w_k - \bar{w})/T; \text{ and}$$

$$y_k = b_k(w_k - \bar{w} - 2.75 \times T)/S;$$

where w_k = weight on the k^{th} DRG;

$\bar{w}$ = 1981 CMI (the average weight);

a_k = intercept in regression equation for k^{th} DRG giving annual trend in the percent of Medicare cases in the DRG;

b_k = coefficient for FY1984 (PPS) in the regression equation for the k^{th} DRG (FY1984 shift);

T = pre-1984 trend in the CMI; and

S = 1984 shift in the CMI.

DRGs with weights larger than average contribute positively to explaining the CMI increase by increasing their share of Medicare discharges. DRGs with weights smaller than average contribute positively to explaining the CMI increase by decreasing their share of Medicare discharges.

Table 9 shows which DRGs had the largest contributions. Note that those DRGs contributing most to the pre-PPS trend are different from those contributing most to the shift.

Table 9

INDIVIDUAL DRG CONTRIBUTIONS

Largest contributors to trend		Percent
106	Coronary bypass with cardiac cath	21
410	Chemotherapy	−10
209	Major joint procedures	9
107	Coronary bypass w/o cardiac cath.	8
108	Cardiothoracic procedures, except valve and coronary bypass, with pump	8
110	Major reconstructive vascular procedures age ≥70 and/or C.C.	8
Largest contributors to shift		
39	Lens procedures	19
121	Circulatory disorders with AMI and C.V. comp. disch. alive	8
108	Cardiothoracic procedures, except valve and coronary bypass, with pump	8
209	Major joint procedures	7
148	Major small and large bowel procedures age ≥70 and/or C.C.	7

SOURCE: 705 PAS hospitals.

MAJOR DIAGNOSTIC CATEGORIES

To obtain a broad perspective on the sources of the trend and shift components of the CMI increase, we aggregated the DRGs into the major diagnostic categories (MDC). Table 10 shows the proportion of Medicare admissions and the contributions to the shift and trend for each MDC.

Contributions by MDC

Looking at the contributions to the trend, MDC 5 (circulatory system) has the largest contribution, both in absolute terms and relative to its proportion of Medicare discharges. It accounts for 53 percent of the trend in the CMI. Increasing rates of heart surgery play an important role in this. Substantial negative contributions to the trend in CMI increases have been played by MDC 17 (myloproliferative and poorly differentiated neoplasms) and MDC 2 (eye). The latter reflects a trend of increasing admissions for lens procedures.

The explanation for the PPS-shift in the CMI is different. While MDC 5 has the largest contribution here as well, it is not disproportionate to its share of discharges. Large and disproportionate contributions come from MDC 8 (musculoskeletal and connective tissue) and from MDC 2. In the latter case, this is due to a reversal of the trend. There was a sharp decline from the trend in admissions for lens procedures at the time of introduction of PPS. The decline in the proportion of discharges classified into DRG 468 (major operating room procedure unrelated to principal diagnosis) had an important negative contribution to the CMI shift.

Proportion of Surgical vs. Medical DRGs

Most MDCs consist of both medical and surgical DRGs, with the latter tending to have the higher weight. In some cases the surgical procedure responsible for classifying a patient into a surgical DRG is a minor one, so that more complete coding of such procedures can increase the CMI by substituting a surgical DRG for a medical one.

To study the role of such coding, we compared the proportion of medical versus surgical DRGs in 1984 with the proportion that would have been expected if prior trends had continued. For each of the 15 MDCs that have both medical and surgical DRGs, we compared the proportion of discharges in surgical DRGs in 1984 with the proportion projected on the basis of pre-PPS trends in each of the DRGs.

Table 10

CONTRIBUTIONS TO CMI TREND AND SHIFT
BY MAJOR DIAGNOSTIC CATEGORY

	MDC	Percentage of Discharges, 1981	Percent Contribution to Trend	Percent Contribution to Shift
1.	Nervous system	8.0	8	5
2.	Eye	4.7	−9	18
3.	Ear, nose, throat	1.9	4	4
4.	Respiratory system	10.9	−1	15
5.	Circulatory system	21.5	53	20
6.	Digestive system	13.2	16	8
7.	Hepatobilia and pancreas	3.2	−1	3
8.	Musculoskeletal and connective tissue	9.8	11	19
9.	Skin and subcutaneous tissue, and breast	3.3	7	3
10.	Endocrine, nutritional, and metabolic	3.4	2	2
11.	Kidney and urinary tract	4.9	4	4
12.	Male reproductive	3.2	3	1
13.	Female reproductive	1.6	4	1
14.	Pregnancy, childbirth, and puerperium	0.1	1	−0
15.	Newborns	0.0	1	−0
16.	Blood and immunological	1.1	−1	1
17.	Myloproliferative and poorly differentiated neoplasms	2.2	−10	−2
18.	Infectious and parasitic	0.8	4	7
19.	Mental	2.0	1	−0
20.	Substance use and induced mental	0.5	2	−1
21.	Injuries, poisoning, and toxic effects of drugs	1.1	0	2
22.	Burns	0.1	−1	1
23.	Other	0.8	2	3

SOURCE: Panel of 705 PAS hospitals.

The proportion of surgical DRGs was higher in 1984 than would have been expected on the basis of prior trends. Although the total increase in the amount of surgery was not very large, the shift occurred in MDCs where there was a substantial difference between the average weight of medical and surgical DRGs.

To estimate the contribution of this shift toward surgical cases within an MDC to the overall increase in the CMI associated with PPS, we calculated what the CMI for 1984 would have been if the

proportion of discharges in each MDC remained the same, but the proportion of surgical discharges within each MDC reflected prior trends. The movement within MDCs from medical to surgical DRGs accounts for 22 percent of the PPS-induced shift in the CMI.

We are unable to infer from the above analysis whether this shift toward surgical cases reflects more complete coding of minor surgical procedures, or PPS-induced surgery. While we suspect that coding is responsible for most, research with claims data from Medicare Part B could answer this question more conclusively. Since Part B payment of physicians depends on coding of surgical procedures, it is likely that pre- and post-PPS data would be comparably complete.

DRG PAIRS

To investigate the role of coding further, we analyzed shifts associated with PPS in pairs of DRGs that differ only by the age of the patient and the presence or absence of complications and comorbidities. We identified 107 pairs of DRGs that are relevant to the Medicare population. Of these 107 pairs, 100 had shifts toward the DRG with the higher weight. This is strong evidence that coding changes have contributed to the increase in the CMI; however, the magnitude of the effect on the CMI of this kind of coding change is actually quite modest. If the relative proportion of each pair had followed their pre-PPS trends, the PPS shift would have been only 12 percent lower than it was.[1]

OUTPATIENT SHIFTS

Recent years have witnessed a substantial shift from inpatient to outpatient services, especially in surgery. Because those patients who would have been admitted to the hospital in the past would typically have been classified into DRGs with weights lower than average, the movement to outpatient settings tends to increase the CMI.

To investigate the role of shifts to outpatient settings, we developed a list of 37 DRGs in which outpatient care is a significant alternative (see Table 11). We did so by using internal HCFA documents; a list given to hospitals by a PRO, specifying procedures that should not warrant hospitalization unless special circumstances apply; and suggestions of a physician-researcher at Rand.

[1]The actual contribution of the total set of DRGs to the PPS shift is actually much larger than this 12 percent because of changes in the frequency of cases in each pair. There is much more potential for more complex coding changes.

Table 11

DRGs WITH POTENTIAL FOR OUTPATIENT SUBSTITUTION

		Contributions to Change in CMI(%)		
	DRG	Trend	FY84 Shift	Total
6	Carpal tunnel release	0.68	1.07	0.85
39	Lens procedures	−13.98	19.21	1.51
40	Extraocular procedures, except orbit age ≥ 18	1.83	0.13	1.03
53	Sinus and mastoid procedures, age ≥ 18	0.14	−0.38	−0.10
55	Misc. ear, nose and throat procedures	0.42	−0.05	0.20
61	Myringotomy age ≥ 18	0.03	0.06	0.04
161	Inguinal and femoral hernia procedures, age ≥ 70 and/or C.C.	0.93	−1.11	−0.02
162	Inguinal and femoral hernia procedures, age 18–69 w/o C.C.	2.04	−0.06	1.05
187	Dental extractions and restorations	0.83	−0.22	0.33
221	Knee procedures, age ≥ 70 and/or C.C.	0.24	−0.04	0.10
222	Knee procedures, age < 70 w/o C.C.	−0.11	0.12	−0.01
225	Foot procedures	−0.32	0.31	−0.03
228	Ganglion (hand) procedures	0.41	−0.07	0.18
229	Hand procedures except ganglion	0.32	0.50	0.40
232	Arthroscopy	−0.00	0.18	0.08
261	Breast procedures for nonmalignancy except biopsy and local excision	0.05	0.00	0.03
262	Breast biopsy and local excision for nonmalignancy	1.17	−0.27	0.49
266	Skingrafts except for skin ulcer or cellulitis w/o C.C.	0.15	0.08	0.12
267	Perianal and pilonidal procedures	0.03	−0.03	0.00
268	Skin, subcutaneous, tissue and breast plastic procedures	0.19	0.09	0.14
270	Other skin, subcutaneous tissue, and breast O.R. procedures age < 70 w/o C.C.	0.55	0.07	0.32
310	Transurethral proc., age ≥ 70 and/or C.C.	0.46	−0.86	−0.15
311	Transurethral proc., age < 70 w/o C.C.	0.65	0.16	0.41
320	Kidney and urinary tract infections, age ≥ 70 and/or C.C.	−2.07	0.61	−0.81
321	Kidney and urinary tract infections age 18–69 w/o C.C.	1.04	0.44	0.75
322	Kidney & urinary tract infections, age 0–17	0.01	−0.01	0.00
328	Urethral stricture, age ≥ 70 and/or C.C.	0.67	0.08	0.39
329	Urethral stricture, age 18–69 w/o C.C.	0.36	0.02	0.20
336	Transurethral prostatectomy, age ≥ 70 and/or C.C.	−0.17	−0.31	− 0.21
337	Transurethral prostatectomy, age < 70 w/o C.C.	0.91	0.31	0.62
342	Circumcision, age ≥ 18	0.63	−0.16	0.26
359	Tubal interruption for nonmalignancy	0.02	0.00	0.01
361	Laparoscopy and endoscopy (female) except tubal interruption	0.06	0.06	0.05
362	Laparoscopic tubal interruption	0.05	−0.01	0.02
	Total, 37 DRGs	−1.78	19.92	8.25

In analyzing the contribution that changes in the proportion of discharges in these DRGs made to the overall CMI increase, we found that DRG 39 (lens procedures) had to be analyzed separately. It accounts for such a large proportion of Medicare discharges and has experienced such large changes over time that it tends to dominate the other 36 DRGs on the list.

Over time, the other 36 DRGs have fallen as a percentage of Medicare discharges. Since the resource needs of such patients (as reflected in DRG weights) are much lower than average, this decline has contributed to increase the CMI. We estimate that these 36 DRGs account for 12 percent of the pre-PPS trend in the CMI. The relative decline in the proportion of discharges in these DRGs accelerated somewhat during PPS, but this accounted for only one percent of the shift in the CMI associated with PPS.

The fact that discharges in these DRGs did not increase during the first year of PPS must be highly encouraging to HCFA. If the incentives of per-case payment were to increase the admission rate, these DRGs would be prime candidates. Either the incentives have turned out not to be as strong as had been commonly predicted, or other forces, such as PRO review, technological change, or changes in physician attitudes, have predominated.

The pattern for lens procedures is quite different. During the pre-PPS period, the number of discharges in DRG 39 increased substantially—from 3.62 percent of Medicare discharges in calendar year 1981 to 3.95 percent in fiscal year 1983. This tended to reduce the CMI, offsetting 14 percent of the increase from other DRGs. In 1984, however, this was reversed, with discharges declining to 3.52 percent of Medicare discharges. This reversal accounted for 19 percent of the increase in the CMI associated with PPS.

Since hospitals regard the reimbursement for DRG 39 under PPS as too low,[2] PPS may have encouraged them to shift the procedures to their outpatient departments, where reimbursement is still on the basis of incurred costs. Discouragement of inpatient lens procedures by PROs may also have contributed to this shift.

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[2]See, for example, the Appendix to the report of the Prospective Payment Assessment Commission.

IV. CONCLUSIONS

This final section organizes the results presented above to answer the question of how much of the 8.4 percent increase in the CMI is due to medical practice changes, aging of the Medicare population, and documentation and coding practices. It then discusses the policy implications of these results.

RECAPITULATION OF RESULTS

Medical practice changes accounted for a small portion—2.1 percentage points—of the overall increase in the CMI. As shown in Table 12, that figure has two distinct components. The pre-PPS trend in the CMI, which we attribute to medical practice changes, accounts for 1.4 percentage points (0.50 percent per year for 2.75 years). The sharp departure from trend in the proportion of admissions for lens procedures accounts for 0.7 percentage points. This was computed by taking 19 percent of the 3.5 percentage point increase in the CMI attributed to PPS by the regression models (see below).

Aging of the population of Medicare inpatients did not contribute to the increase in the CMI over this period, and is unlikely to in the immediate future. The absence of an aging component to the CMI increase does point to a shortcoming in the DRG classification system, however.

The remainder of the CMI increase—6.2 percentage points—is attributed to documentation and coding. This consists of 2.8 percentage points for the effects of PPS-induced coding changes, and 3.3 percentage points for the inconsistencies between the 1981 MEDPAR data base and the 1984 PATBILL data base.

The estimate for PPS-induced coding changes comes from the regression models estimated on the Medicare and PAS data bases, respectively. From the Medicare analysis, a 3.3 percent increase in the CMI was associated with PPS. From the PAS analysis, a 3.5 percent increase was calculated. Since the estimates from the regressions on the Medicare data base may be too low because of the inability to measure an anticipatory effect, we have used the slightly higher result from PAS in Table 12.

The estimate of PPS-induced coding changes is a 2.8 percentage point impact on the CMI, instead of a 3.5 percentage point impact, because 19 percent (0.6 percentage point) of the PPS effect reflects the shift in lens procedure discharges—a medical practice change.

Table 12

DECOMPOSITION OF CMI INCREASE

(In percent)

CY1981-FY1984 CMI increase	8.4
Medical practice changes	
Pre-PPS trend	1.4
PPS-associated shifts to outpatient	0.7
Setting for lens procedures	0.7
Other outpatient substitution	0.0
Total, medical practice changes	2.1
Older patients	0.0
Coding practice changes	
PPS-induced	2.8
MEDPAR/PATBILL/ inconsistency	3.3
Total, coding practice changes	6.2

NOTE: Numbers are multiplicative rather than additive. For example, $1.028 \times 1.033 = 1.062$.

The effect of data base inconsistencies is calculated as a residual. The 3.3 percentage point contribution is that component of the 8.4 percent increase not explained by other factors.[1]

If we look at the change in Medicare/CPHA differences in the CMI over time, the direct method produces an estimate of 2.1 percent, which is not greatly different from the residual estimate of 3.3 percent. The residual is much closer to the original estimate of 3.4 percent developed by the Medicare Actuary on the basis of a comparison of MEDPAR with data for 1981 collected by the PSRO program.

POLICY IMPLICATIONS

The finding that coding has been responsible for a large proportion of the CMI increase experienced to date call for an adjustment of rates to reflect this. This implication does not question the integrity of the hospital industry, however. An increase in the CMI coinciding with PPS was expected, since a characteristic of the DRG system is such

[1]Originally, we had hoped to estimate this directly by comparing the 1981 MEDPAR CMI with the 1981 PAS CMI for PAS hospitals. We made this comparison, and calculated a 5.2 percent difference. As a check, we made the same comparison for 1984, and instead of finding a negligible difference, we calculated a 3.0 difference. We still do not understand why Medicare's data system and the CPHA data system should indicate such different CMIs for the same hospitals in 1984; for that reason, we prefer calculating the component as a residual.

that increased thoroughness in coding will tend to move patients into higher-weighted DRGs. The increase simply exceeded the projection.

The crucial question, which is still outstanding, is whether the increase in the CMI that is associated with PPS is a one-time adjustment to an environment in which coding has reimbursement implications, or is the beginning of a continual inflation in case mix. If the former is the case, then it can be dealt with through simple adjustments in the rates. If increases in the CMI were to continue, this would call into question the usefulness of the current DRG system. While the federal budget can always be protected through rate adjustments, the prospects of injury to hospitals that did not devote enough effort to "gaming the system" would be cause for grave concern.

A narrower but important issue concerns the budget neutrality requirements that were applied to the payment rates for fiscal years 1984 and 1985. The Social Security Amendments of 1983, which authorized PPS, directed the Secretary of Health and Human Services to set payment rates for fiscal years 1984 and 1985 that would result in Medicare outlays for inpatient hospital services not exceeding the levels that would have been experienced under the reimbursement policies created one year earlier by the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA). Whether this requirement has in fact been met depends on the number of discharges and the payments per discharge. The results of this study permit comment on the latter issue.[2]

PPS payments per discharge appear to have been substantially higher than would have been the case under TEFRA. The CMI increased 8.4 percent from 1981 to 1984, but in setting the payment rates for 1984, only a 3.4 percent increase had been assumed.

The key question then is: Would this CMI increase have occurred under TEFRA, and if it had, how would it have affected outlays under TEFRA? For the portion of the CMI increase due to coding, whether or not it would have occurred under TEFRA, it would not have affected outlays. The reimbursement provisions of TEFRA consisted of two components. One was a target for the rate of growth in costs per discharge. Hospitals received bonuses or were subject to penalties for rates that were lower or higher than the targets. But neither the targets nor the hospitals' costs were adjusted for case mix, so coding changes would have had no effect on that component.

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[2]Even though the number of discharges declined between 1983 and 1984, many analysts believe that PPS is more likely to have increased the number of admissions relative to TEFRA than to have decreased them. This is because of presumed stronger incentives on the part of hospitals under PPS to admit additional Medicare patients. Lens procedures may be an important exception, however.

The other reimbursement component of TEFRA consisted of limits on levels of costs per admission that could be reimbursed. They were an expansion of so-called "Section 223" limits that had been in effect for a number of years. This component did use DRGs to calculate the limits, and each hospital's costs were divided by its CMI before they were compared with the limits, but all of the case mix data used for those calculations were historical rather than current. Thus, the CMI increase would not have affected this component of TEFRA during 1984. Of course, 1984 CMIs would ultimately have been used to calculate the limits in future years, but since this component of TEFRA was a relative system—the limits were calculated from costs of peer groups of hospitals—changes in the CMI due to coding would not have affected outlays. Thus, neither of the two reimbursement components of TEFRA would have been affected by coding changes.

Medical practice changes also would not have affected outlays under TEFRA. This study distinguished between two elements: pre-PPS trends and the change in location of lens procedures. Pre-PPS trends were likely to have been incorporated in the TEFRA growth rate targets and the Medicare Actuary's assumptions about actual growth rates that would have been experienced. The growth rate targets set by the Congress were based on historical trends in costs per admission, which reflected these trends in medical practice. The actuarial assumptions concerning actual costs per admission under TEFRA were also based on these historical data. Thus, the portion of the CMI increase due to medical practice trends were already incorporated in the projected outlays under TEFRA.

The other component of medical practice changes—the 0.6 percentage points associated with shifts of lens procedures to the outpatient department—is somewhat more complex, since the reasons for it are not known with certainty. If it resulted from the underpayment caused by the rapid diffusion of intraocular lens implant technology, then the shift would not have occurred under TEFRA. If other reasons predominated, and the shift would have occurred under TEFRA, most of the increased costs per admission would not have affected outlays. Fully 75 percent of costs exceeding the growth rate target would not have been recognized for reimbursement under TEFRA in 1984 (100 percent in 1985), and much of the 25 percent that would have been recognized would have been offset by lower bonus payments for those hospitals under the growth rate target.

Appendix

DRG REGRESSIONS

DRG	Title	Change in % of Medicare Admissions in DRG: Trend	Change in % of Medicare Admissions in DRG: FY1984 Shift	DRG Weight	% of 1981 Medicare Admissions in DRG
001	CRANIOTOMY AGE >=18 EXCEPT FOR TRAUMA	0.0067	0.0214*	3.3548	0.18
002	CRANIOTOMY FOR TRAUMA AGE >=18	0.0024	0.0022	3.2829	0.04
003	CRANIOTOMY AGE <18	0.0002	-0.0003	2.9489	0.00
004	SPINAL PROCEDURES	0.0027	-0.0010	2.2452	0.03
005	EXTRACRANIAL VASCULAR PROCEDURES	0.0608*	0.0247	1.6780	0.37
006	CARPAL TUNNEL RELEASE	-0.0080	-0.0302*	0.3993	0.18
007	PERIPH & CRANIAL NERVE & OTHER NERV SYST PROC AGE >=70 &/OR C.C	0.0030	-0.0003	1.0279	0.07
008	PERIPH & CRANIAL NERVE & OTHER NERV SYST PROC AGE <70 W/O C.C.	-0.0052*	-0.0043	0.7239	0.05
009	SPINAL DISORDERS & INJURIES	-0.0034	0.0041	1.3958	0.03
010	NERVOUS SYSTEM NEOPLASMS AGE >=70 AND/OR C.C.	0.0086	0.0307*	1.3087	0.13
011	NERVOUS SYSTEM NEOPLASMS AGE <70 W/O C.C.	-0.0008	0.0006	1.2545	0.03
012	DEGENERATIVE NERVOUS SYSTEM DISORDERS	0.0033	-0.0402*	1.1136	0.54
013	MULTIPLE SCLEROSIS & CEREBELLAR ATAXIA	-0.0011	-0.0030	1.0150	0.08
014	SPECIFIC CEREBROVASCULAR DISORDERS EXCEPT TIA	0.0102	0.2636*	1.3527	2.71
015	TRANSIENT ISCHEMIC ATTACKS	0.0409*	0.0802*	0.6673	1.46
016	NONSPECIFIC CEREBROVASCULAR DISORDERS WITH C.C.	-0.0310*	-0.0014	0.8592	0.30
017	NONSPECIFIC CEREBROVASCULAR DISORDERS W/O C.C.	-0.0530	-0.0222*	0.8392	0.33
018	CRANIAL & PERIPHERAL NERVE DISORDERS AGE >=70 AND/OR C.C.	0.0038	-0.0091	0.7915	0.19
019	CRANIAL & PERIPHERAL NERVE DISORDERS AGE <70 W/O C.C.	-0.0021	-0.0105*	0.6975	0.08
020	NERVOUS SYSTEM INFECTION EXCEPT VIRAL MENINGITIS	0.0015	0.0030	1.3141	0.05
021	VIRAL MENINGITIS	0.0014	-0.0014	0.6301	0.00
022	HYPERTENSIVE ENCEPHALOPATHY	0.0009	0.0244*	0.7869	0.08
023	NONTRAUMATIC STUPOR & COMA	-0.0001	0.0106*	1.1568	0.03
024	SEIZURE & HEADACHE AGE >=70 AND/OR C.C.	0.0283*	0.0254*	0.7279	0.41
025	SEIZURE & HEADACHE AGE 18-69 W/O C.C.	-0.0084*	-0.0125*	0.6392	0.19
026	SEIZURE & HEADACHE AGE 0-17	-0.0007	0.0010	0.4349	0.00
027	TRAUMATIC STUPOR & COMA, COMA >1 HR	-0.0017	0.0052*	1.1368	0.02

* For footnote, see last page of table.

DRG	Title	Change in % of Medicare Admissions in DRG: Trend	Change in % of Medicare Admissions in DRG: FY1984 Shift	DRG Weight	% of 1981 Medicare Admissions in DRG
028	TRAUMATIC STUPOR & COMA, COMA <1 HR AGE >=70 AND/OR C.C.	0.0037	0.0050	1.0701	0.08
029	TRAUMATIC STUPOR & COMA <1 HR AGE 18-69 W/O C.C.	-0.0003	-0.0010	0.7175	0.01
030	TRAUMATIC STUPOR & COMA <1 HR AGE 0-17	0.0000	-0.0002	0.3576	0.00
031	CONCUSSION AGE >=70 AND/OR C.C.	-0.0060*	0.0153*	0.6051	0.10
032	CONCUSSION AGE 18-69 W/O C.C.	-0.0020	0.0009	0.4519	0.02
033	CONCUSSION AGE 0-17	0.0002	-0.0005	0.2483	0.00
034	OTHER DISORDERS OF NERVOUS SYSTEM AGE >=70 AND/OR C.C.	0.0068	0.0136	0.9927	0.11
035	OTHER DISORDERS OF NERVOUS SYSTEM AGE <70 W/O C.C.	-0.0019	-0.0006	0.8460	0.04
036	RETINAL PROCEDURES	-0.0037	0.0155	0.7093	0.15
037	ORBITAL PROCEDURES	0.0010	-0.0114*	0.5630	0.04
038	PRIMARY IRIS PROCEDURES	-0.0155	0.0062*	0.4325	0.06
039	LENS PROCEDURES	0.1911*	-0.6333*	0.5010	3.62
040	EXTRAOCULAR PROCEDURES EXCEPT ORBIT AGE >=18	-0.0215*	-0.0038	0.3977	0.20
041	EXTRAOCULAR PROCEDURES EXCEPT ORBIT AGE 0-17	-0.0001	0.0001	0.3695	0.00
042	INTRAOCULAR PROCEDURES EXCEPT RETINA, IRIS & LENS	-0.0212*	0.0557*	0.5906	0.33
043	HYPHEMA	-0.0010	0.0012	0.3828	0.01
044	ACUTE MAJOR EYE INFECTIONS	-0.0019	0.0029	0.6298	0.02
045	NEUROLOGICAL EYE DISORDERS	0.0011	-0.0024	0.5641	0.05
046	OTHER DISORDERS OF THE EYE AGE >=18 WITH C.C.	0.0021	-0.0068	0.5964	0.06
047	OTHER DISORDERS OF THE EYE AGE >=18 W/O C.C.	-0.0062*	-0.0141*	0.5064	0.12
048	OTHER DISORDERS OF THE EYE AGE 0-17	-0.0001	0.0001	0.4060	0.00
049	MAJOR HEAD & NECK PROCEDURES	-0.0008	-0.0001	2.5270	0.05
050	SIALOADENECTOMY	-0.0027	0.0047	0.7160	0.05
051	SALIVARY GLAND PROCEDURES EXCEPT SIALOADENECTOMY	-0.0013	-0.0008	0.6702	0.02
052	CLEFT LIP & PALATE REPAIR	0.0002	-0.0004	0.6488	0.00
053	SINUS & MASTOID PROCEDURES AGE >=18	-0.0023	0.0144*	0.5895	0.10
054	SINUS & MASTOID PROCEDURES AGE 0-17	-0.0000	0.0000	0.6961	0.00
055	MISCELLANEOUS EAR, NOSE & THROAT PROCEDURES	-0.0050	0.0014	0.4153	0.19
056	RHINOPLASTY	-0.0011	-0.0013	0.4144	0.03

DRG	Title	Change in % of Medicare Admissions in DRG: Trend	Change in % of Medicare Admissions in DRG: FY1984 Shift	DRG Weight	% of 1981 Medicare Admissions in DRG
057	T&A PROC EXCEPT TONSILLECTOMY &/OR ADENOIDECTOMY AGE >=18	-0.0007	0.0015	0.5251	0.01
058	T&A PROC EXCEPT TONSILLECTOMY &/OR ADENOIDECTOMY AGE 0-17	-0.0001	0.0000	0.3130	0.00
059	TONSILLECTOMY AND/OR ADENOIDECTOMY ONLY, AGE >=18	-0.0002	-0.0001	0.3147	0.00
060	TONSILLECTOMY AND/OR ADENOIDECTOMY ONLY, AGE 0-17	-0.0004	-0.0010*	0.2643	0.00
061	MYRINGOTOMY AGE >=18	-0.0004	-0.0017	0.4273	0.01
062	MYRINGOTOMY AGE 0-17	0.0001	-0.0003	0.3121	0.00
063	OTHER EAR, NOSE & THROAT O.R. PROCEDURES	0.0001	-0.0029	1.1090	0.05
064	EAR, NOSE & THROAT MALIGNANCY	-0.0092*	0.0003	1.0812	0.13
065	DYSEQUILIBRIUM	0.0212	-0.0667*	0.4857	0.41
066	EPISTAXIS	-0.0082	-0.0040	0.4116	0.16
067	EPIGLOTTITIS	0.0003	0.0005	0.6762	0.00
068	OTITIS MEDIA & URI AGE >=70 AND/OR C.C.	-0.0465	-0.0468	0.6289	0.43
069	OTITIS MEDIA & URI AGE 18-69 W/O C.C.	-0.0096	-0.0194	0.5417	0.08
070	OTITIS MEDIA & URI AGE 0-17	-0.0012*	0.0002	0.3697	0.00
071	LARYNGOTRACHEITIS	-0.0001	-0.0007	0.3589	0.00
072	NASAL TRAUMA & DEFORMITY	-0.0007	-0.0043*	0.4857	0.02
073	OTHER EAR, NOSE & THROAT DIAGNOSES AGE >=18	-0.0030	-0.0048	0.5217	0.13
074	OTHER EAR, NOSE & THROAT DIAGNOSES AGE 0-17	0.0000	-0.0004	0.3463	0.00
075	MAJOR CHEST PROCEDURES	0.0026	-0.0227*	2.6044	0.32
076	O.R. PROC ON THE RESP SYSTEM EXCEPT MAJOR CHEST WITH C.C.	0.0031	0.0077	1.8734	0.11
077	O.R. PROC ON THE RESP SYSTEM EXCEPT MAJOR CHEST W/O C.C.	-0.0064*	-0.0042	1.8178	0.05
078	PULMONARY EMBOLISM	-0.0049	0.0075	1.4095	0.27
079	RESPIRATORY INFECTIONS & INFLAMMATIONS AGE >=70 AND/OR C.C.	0.0288	0.1475*	1.7982	0.27
080	RESPIRATORY INFECTIONS & INFLAMMATIONS AGE 18-69 W/O C.C.	-0.0013	0.0001	1.7445	0.02
081	RESPIRATORY INFECTIONS & INFLAMMATIONS AGE 0-17	-0.0000	0.0009*	0.8743	0.00
082	RESPIRATORY NEOPLASMS	0.0056	-0.0389	1.1400	1.14
083	MAJOR CHEST TRAUMA AGE >=70 AND/OR C.C.	-0.0005	0.0017	0.9809	0.11
084	MAJOR CHEST TRAUMA AGE <70 W/O C.C.	-0.0002	-0.0010	0.7738	0.01
085	PLEURAL EFFUSION AGE >=70 AND/OR C.C.	0.0037	0.0325*	1.1461	0.12
086	PLEURAL EFFUSION AGE <70 W/O C.C.	-0.0008	-0.0036	1.1217	0.01

DRG	Title	Change in % of Medicare Admissions in DRG: Trend	Change in % of Medicare Admissions in DRG: FY1984 Shift	DRG Weight	% of 1981 Medicare Admissions in DRG
087	PULMONARY EDEMA & RESPIRATORY FAILURE	0.0022	0.2903*	1.5529	0.49
088	CHRONIC OBSTRUCTIVE PULMONARY DISEASE	-0.0638	-0.3164*	1.0412	2.42
089	SIMPLE PNEUMONIA & PLEURISY AGE >=70 AND/OR C.C.	0.0803	0.0560	1.1029	2.51
090	SIMPLE PNEUMONIA & PLEURISY AGE 18-69 W/O C.C.	-0.0086	-0.0455	0.9849	0.24
091	SIMPLE PNEUMONIA & PLEURISY AGE 0-17	-0.0005	-0.0007	0.5131	0.01
092	INTERSTITIAL LUNG DISEASE AGE >=70 AND/OR C.C.	0.0077	-0.0288*	1.0370	0.15
093	INTERSTITIAL LUNG DISEASE AGE <70 W/O C.C.	-0.0016	-0.0043	0.9724	0.02
094	PNEUMOTHORAX AGE >=70 AND/OR C.C.	0.0022	0.0154*	1.4374	0.06
095	PNEUMOTHORAX AGE <70 W/O C.C.	-0.0004	-0.0012	1.1252	0.01
096	BRONCHITIS & ASTHMA AGE >=70 AND/OR C.C.	0.1045	-0.1717	0.7996	1.54
097	BRONCHITIS & ASTHMA AGE 18-69 W/O C.C.	-0.0098	-0.0584	0.7256	0.32
098	BRONCHITIS & ASTHMA AGE 0-17	-0.0009	-0.0011	0.4275	0.01
099	RESPIRATORY SIGNS & SYMPTOMS AGE >=70 AND/OR C.C.	0.0270*	-0.0183	0.8035	0.31
100	RESPIRATORY SIGNS & SYMPTOMS AGE <70 W/O C.C.	-0.0027	-0.0079	0.7730	0.09
101	OTHER RESPIRATORY DIAGNOSES AGE >=70 AND/OR C.C.	0.0071	-0.0036	0.9035	0.27
102	OTHER RESPIRATORY DIAGNOSES AGE <70	-0.0045	-0.0007	0.9024	0.04
103	HEART TRANSPLANT				
104	CARDIAC VALVE PROCEDURE WITH PUMP & WITH CARDIAC CATH	0.0062	-0.0025	6.8527	0.05
105	CARDIAC VALVE PROCEDURE WITH PUMP & W/O CARDIAC CATH	0.0035	-0.0054	5.2308	0.07
106	CORONARY BYPASS WITH CARDIAC CATH	0.0426*	-0.0006	5.2624	0.21
107	CORONARY BYPASS W/O CARDIAC CATH	0.0249	-0.0419	3.9891	0.26
108	CARDIOTHOR PROC,EXCEPT VALVE & CORONARY BYPASS,WITH PUMP	0.0215*	0.0522*	4.3756	0.01
109	CARDIOTHORACIC PROCEDURES W/O PUMP	0.0063*	0.0023	3.6963	0.03
110	MAJOR RECONSTRUCTIVE VASCULAR PROCEDURES AGE >=70 AND/OR C.C.	0.0368*	0.0515*	2.9328	0.45
111	MAJOR RECONSTRUCTIVE VASCULAR PROCEDURES AGE <70 W/O C.C.	-0.0046	-0.0150*	2.5851	0.10

DRG	Title	Change in % of Medicare Admissions in DRG: Trend	Change in % of Medicare Admissions in DRG: FY1984 Shift	DRG Weight	% of 1981 Medicare Admissions in DRG
112	VASCULAR PROCEDURES EXCEPT MAJOR RECONSTRUCTION	0.0079	-0.0070	2.3500	0.35
113	AMPUTATION FOR CIRC SYSTEM DISORDERS EXCEPT UPPER LIMB & TOE	-0.0045	0.0222*	2.6800	0.19
114	UPPER LIMB & TOE AMPUTATION FOR CIRC SYSTEM DISORDERS	-0.0004	0.0012	2.1067	0.06
115	PERMANENT CARDIAC PACEMAKER IMPLANT WITH AMI OR CHF	-0.0081	0.0109	3.9150	0.10
116	PERMANENT CARDIAC PACEMAKER IMPLANT W/O AMI OR CHF	-0.0263	-0.0100	2.8665	0.62
117	CARDIAC PACEMAKER REPLACE & REVIS EXC PULSE GEN REPL ONLY	-0.0024	0.0204*	1.8210	0.07
118	CARDIAC PACEMAKER PULSE GENERATOR REPLACEMENT ONLY	-0.0093*	0.0222*	1.7809	0.09
119	VEIN LIGATION & STRIPPING	-0.0045*	-0.0018	1.0610	0.07
120	OTHER O.R. PROCEDURES ON THE CIRCULATORY SYSTEM	0.0026	0.0061	2.5204	0.14
121	CIRCULATORY DISORDERS WITH AMI & C.V. COMP. DISCH. ALIVE	0.0334*	0.2392*	1.8648	0.73
122	CIRCULATORY DISORDERS WITH AMI W/O C.V. COMP. DISCH. ALIVE	-0.0216	-0.0478	1.3651	1.41
123	CIRCULATORY DISORDERS WITH AMI, EXPIRED	-0.0185	0.0035	1.1360	0.74
124	CIRCULATORY DISORDERS EXC AMI,WITH CARD CATH & COMPLEX DIAG	0.0383*	0.0867*	2.2200	0.21
125	CIRCULATORY DISORDERS EXC AMI, WITH CARD CATH W/O COMPLEX DIAG	0.0601*	-0.1063*	1.6455	0.66
126	ACUTE & SUBACUTE ENDOCARDITIS	0.0021	0.0018	2.6645	0.02
127	HEART FAILURE & SHOCK	0.0179	0.5362*	1.0408	4.16
128	DEEP VEIN THROMBOPHLEBITIS	-0.0056	0.0203	0.8639	0.40
129	CARDIAC ARREST	-0.0014	-0.0321*	1.5506	0.17
130	PERIPHERAL VASCULAR DISORDERS AGE >=70 AND/OR C.C.	-0.0193	0.0149	0.9645	0.87
131	PERIPHERAL VASCULAR DISORDERS AGE <70 W/O C.C.	-0.0130*	-0.0082	0.9491	0.19
132	ATHEROSCLEROSIS AGE >=70 AND/OR C.C.	-0.2853*	-0.3994*	0.9182	1.96
133	ATHEROSCLEROSIS AGE <70 W/O C.C.	-0.0318*	-0.0417*	0.8599	0.20
134	HYPERTENSION	-0.0750*	-0.1898*	0.7049	1.00
135	CARDIAC CONGENITAL & VALVULAR DISORDERS AGE >=70 AND/OR C.C	-0.0090	-0.0236*	0.9922	0.17
136	CARDIAC CONGENITAL & VALVULAR DISORDERS AGE 18-69 W/O C.C.	-0.0022*	-0.0048*	0.9674	0.02
137	CARDIAC CONGENITAL & VALVULAR DISORDERS AGE 0-17	0.0000	0.0001	0.6381	0.00
138	CARDIAC ARRHYTHMIA & CONDUCTION DISORDERS AGE >=70 AND/OR C.	0.1172*	0.0007	0.9297	1.56

DRG	Title	Change in % of Medicare Admissions in DRG: Trend	Change in % of Medicare Admissions in DRG: FY1984 Shift	DRG Weight	% of 1981 Medicare Admissions in DRG
139	CARDIAC ARRHYTHMIA & CONDUCTION DISORDERS AGE <70 W/O C.C.	-0.0055	-0.0255*	0.8303	0.26
140	ANGINA PECTORIS	0.1825*	0.2059*	0.7548	2.12
141	SYNCOPE & COLLAPSE AGE >=70 AND/OR C.C.	0.0407*	0.0484*	0.6475	0.61
142	SYNCOPE & COLLAPSE AGE <70 W/O C.C.	-0.0013	-0.0092*	0.5680	0.10
143	CHEST PAIN	0.0300	-0.0654	0.6814	0.59
144	OTHER CIRCULATORY DIAGNOSES WITH C.C.	0.0347*	0.0047	1.1267	0.28
145	OTHER CIRCULATORY DIAGNOSES W/O C.C.	0.0002	-0.0359*	1.0020	0.14
146	RECTAL RESECTION AGE >=70 AND/OR C.C.	0.0060	0.0017	2.7082	0.16
147	RECTAL RESECTION AGE <70 W/O C.C.	-0.0015	-0.0040	2.5087	0.03
148	MAJOR SMALL & LARGE BOWEL PROCEDURES AGE >=70 AND/OR C.C.	0.0067	0.0991*	2.5493	0.99
149	MAJOR SMALL & LARGE BOWEL PROCEDURES AGE <70 W/O C.C.	-0.0080*	-0.0156*	2.2154	0.13
150	PERITONEAL ADHESIOLYSIS AGE >=70 AND/OR C.C.	0.0015	0.0097	2.3746	0.09
151	PERITONEAL ADHESIOLYSIS AGE <70 W/O C.C.	-0.0034*	0.0012	2.0274	0.02
152	MINOR SMALL & LARGE BOWEL PROCEDURES AGE >=70 AND/OR C.C.	0.0111	-0.0027	1.4851	0.13
153	MINOR SMALL & LARGE BOWEL PROCEDURES AGE <70 W/O C.C.	-0.0019	-0.0051	1.2599	0.04
154	STOMACH, ESOPHAGEAL & DUODENAL PROCEDURES AGE >=70 AND/OR C	0.0445	-0.0580	2.6901	0.72
155	STOMACH, ESOPHAGEAL & DUODENAL PROCEDURES AGE 18-69 W/O C.C	-0.0164*	-0.0198*	2.3336	0.16
156	STOMACH, ESOPHAGEAL & DUODENAL PROCEDURES AGE 0-17	0.0004	-0.0004	0.8470	0.00
157	ANAL PROCEDURES AGE >=70 AND/OR C.C.	0.0033	0.0140	0.7985	0.39
158	ANAL PROCEDURES AGE <70 W/O C.C.	-0.0103	-0.0129*	0.6408	0.20
159	HERNIA PROCEDURES EXCEPT INGUINAL & FEMORAL AGE >=70 AND/OR C.C.	-0.0037	0.0278*	0.9297	0.22
160	HERNIA PROCEDURES EXCEPT INGUINAL & FEMORAL AGE 18-69 W/O C.C.	-0.0063	-0.0067	0.7676	0.11
161	INGUINAL & FEMORAL HERNIA PROCEDURES AGE >=70 AND/OR C.C.	-0.0189*	0.0536*	0.7068	0.83
162	INGUINAL & FEMORAL HERNIA PROCEDURES AGE 18-69 W/O C.C.	-0.0323*	0.0022	0.5854	0.37
163	HERNIA PROCEDURES AGE 0-17	-0.0009*	0.0005	0.4358	0.00
164	APPENDECTOMY WITH COMPLICATE PRINC. DIAG AGE>=70 AND/OR C.C.	0.0004	0.0075	1.8320	0.04
165	APPENDECTOMY WITH COMPLICATE PRINC. DIAG AGE <70 W/O C.C.	-0.0003	-0.0020	1.6154	0.01

DRG	Title	Change in % of Medicare Admissions in DRG: Trend	Change in % of Medicare Admissions in DRG: FY1984 Shift	DRG Weight	% of 1981 Medicare Admissions in DRG
166	APPENDECTOMY W/O COMPLICATE PRINC. DIAG AGE >=70 AND/OR C.C.	-0.0029	0.0036	1.4328	0.04
167	APPENDECTOMY W/O COMPLICATE PRINC. DIAG AGE <70 W/O C.C.	0.0009	-0.0071*	1.0818	0.02
168	PROCEDURES ON THE MOUTH AGE >=70 AND/OR C.C.	-0.0028	0.0039	0.8631	0.10
169	PROCEDURES ON THE MOUTH AGE <70 W/O C.C.	-0.0085*	0.0065	0.8992	0.06
170	OTHER DIGESTIVE SYSTEM PROCEDURES AGE >=70 AND/OR C.C.	-0.0037	0.0160*	2.6602	0.12
171	OTHER DIGESTIVE SYSTEM PROCEDURES AGE <70 W/O C.C.	-0.0043*	-0.0005	2.3976	0.03
172	DIGESTIVE MALIGNANCY AGE >=70 AND/OR C.C.	-0.0170*	-0.0127	1.2268	0.54
173	DIGESTIVE MALIGNANCY AGE <70 W/O C.C.	-0.0093*	-0.0064	1.0517	0.07
174	G.I. HEMORRHAGE AGE >=70 AND/OR C.C.	0.0229	0.1898*	0.9281	1.02
175	G.I. HEMORRHAGE AGE <70 W/O C.C.	-0.0143*	-0.0054	0.8236	0.16
176	COMPLICATED PEPTIC ULCER	0.0033	0.0241*	1.2438	0.07
177	UNCOMPLICATED PEPTIC ULCER >=70 AND/OR C.C.	-0.0149	-0.0244	0.7422	0.35
178	UNCOMPLICATED PEPTIC ULCER <70 W/O C.C.	-0.0108*	-0.0133*	0.6141	0.10
179	INFLAMMATORY BOWEL DISEASE	0.0003	0.0014	1.0153	0.08
180	G.I. OBSTRUCTION AGE >=70 AND/OR C.C.	0.0265*	0.0710*	0.8197	0.46
181	G.I. OBSTRUCTION AGE <70 W/O C.C.	-0.0021	0.0004	0.7845	0.09
182	ESOPHAGITIS,GASTROENT.& MISC. DIGEST. DIS AGE >=70 &/OR C.C.	0.0033	-0.2523*	0.6185	3.69
183	ESOPHAGITIS,GASTROENT.& MISC. DIGEST. DIS AGE 18-69 W/O C.C.	-0.0734*	-0.1192*	0.5652	0.89
184	ESOPHAGITIS, GASTROENTERITIS & MISC. DIGEST. DISORDERS AGE 0-17	-0.0011	-0.0006	0.3822	0.01
185	DENTAL & ORAL DIS. EXC EXTRACTIONS & RESTORATIONS,AGE >=18	-0.0044*	-0.0006	0.6681	0.08
186	DENTAL & ORAL DIS. EXC EXTRACTIONS & RESTORATIONS,AGE 0-17	-0.0000	0.0000	0.4155	0.00
187	DENTAL EXTRACTIONS & RESTORATIONS	-0.0097*	0.0061	0.3990	0.07
188	OTHER DIGESTIVE SYSTEM DIAGNOSES AGE >=70 AND/OR C.C.	0.0051	0.0039	0.7444	0.43
189	OTHER DIGESTIVE SYSTEM DIAGNOSES AGE 18-69 W/O C.C.	-0.0088*	-0.0055	0.6576	0.11
190	OTHER DIGESTIVE SYSTEM DIAGNOSES AGE 0-17	-0.0000	-0.0001	0.3379	0.00
191	MAJOR PANCREAS, LIVER & SHUNT PROCEDURES	0.0002	0.0019	4.1791	0.04

DRG	Title	Change in % of Medicare Admissions in DRG		DRG Weight	% of 1981 Medicare Admissions in DRG
		Trend	FY1984 Shift		
192	MINOR PANCREAS, LIVER & SHUNT PROCEDURES	0.0007	0.0011	3.9197	0.03
193	BILIARY TRACT PROC EXC TOT CHOLE-CYSTECTOMY AGE >=70 &/OR C.C.	-0.0035	0.0158*	2.4513	0.12
194	BILIARY TRACT PROC EXC TOT CHOLE-CYSTECTOMY AGE <70 W/O C.C.	-0.0017	-0.0002	1.9881	0.02
195	TOTAL CHOLECYSTECTOMY WITH C.D.E. AGE >=70 AND/OR C.C.	0.0002	0.0261*	2.1690	0.23
196	TOTAL CHOLECYSTECTOMY WITH C.D.E. AGE <70 W/O C.C.	-0.0013	-0.0010	2.0594	0.02
197	TOTAL CHOLECYSTECTOMY W/O C.D.E. AGE >=70 AND/OR C.C.	0.0038	0.0148*	1.4868	0.67
198	TOTAL CHOLECYSTECTOMY W/O C.D.E. AGE <70 W/O C.C.	-0.0183*	-0.0235*	1.2752	0.25
199	HEPATOBILIARY DIAGNOSTIC PROCEDURE FOR MALIGNANCY	-0.0044	0.0021	2.4574	0.06
200	HEPATOBILIARY DIAGNOSTIC PROCEDURE FOR NON-MALIGNANCY	-0.0045*	-0.0022	2.5818	0.05
201	OTHER HEPATOBILIARY OR PANCREAS O.R. PROCEDURES	0.0043*	0.0094*	2.7291	0.02
202	CIRRHOSIS & ALCOHOLIC HEPATITIS	-0.0194*	0.0030	1.1965	0.23
203	MALIGNANCY OF HEPATOBILIARY SYSTEM OR PANCREAS	0.0043	0.0152	1.0937	0.30
204	DISORDERS OF PANCREAS EXCEPT MALIGNANCY	-0.0035	0.0411*	0.9682	0.27
205	DISORDERS OF LIVER EXC MALIG, CIRR,ALC HEPA AGE >=70 AND/OR C.C	-0.0014	0.0252*	1.0822	0.19
206	DISORDERS OF LIVER EXC MALIG, CIRR,ALC HEPA AGE <70 W/O C.C.	-0.0047*	0.0009	0.9247	0.04
207	DISORDERS OF THE BILIARY TRACT AGE >=70 AND/OR C.C.	-0.0115	0.0021	0.8492	0.52
208	DISORDERS OF THE BILIARY TRACT AGE <70 W/O C.C.	-0.0063*	-0.0127*	0.7315	0.10
209	MAJOR JOINT PROCEDURES	0.0622*	0.1324*	2.2912	1.27
210	HIP & FEMUR PROCEDURES EXCEPT MAJOR JOINT AGE >=70 AND/OR C.C.	-0.0391	0.1109*	2.0833	1.17
211	HIP & FEMUR PROCEDURES EXCEPT MAJOR JOINT AGE 18-69 W/O C.C.	-0.0098*	-0.0029	1.9530	0.10
212	HIP & FEMUR PROCEDURES EXCEPT MAJOR JOINT AGE 0-17	0.0003	-0.0006	1.7132	0.00
213	AMPUTATIONS FOR MUSCULOSKELETAL SYSTEM & CONN. TISSUE DISORDERS	0.0010	0.0032	2.1315	0.05
214	BACK & NECK PROCEDURES AGE >=70 AND/OR C.C.	0.0265*	0.0326*	1.8427	0.17
215	BACK & NECK PROCEDURES AGE <70 W/O C.C.	0.0059	-0.0100	1.4920	0.14
216	BIOPSIES OF MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE	-0.0000	0.0089*	1.5596	0.04

DRG	Title	Change in % of Medicare Admissions in DRG: Trend	Change in % of Medicare Admissions in DRG: FY1984 Shift	DRG Weight	% of 1981 Medicare Admissions in DRG
217	WND DEBRID & SKN GRFT EXC HAND, FOR MUSCSKELETAL & CONN.TISS.DIS	0.0057*	-0.0010	2.2824	0.06
218	LOWER EXTREM & HUMER PROC EXC HIP, FOOT,FEMUR AGE >=70 &/OR C.C.	0.0047	0.0232*	1.4250	0.14
219	LOWER EXTREM & HUMER PROC EXC HIP, FOOT,FEMUR AGE 18-69 W/O C.C.	-0.0023	-0.0005	1.0790	0.08
220	LOWER EXTREM & HUMER PROC EXC HIP, FOOT,FEMUR AGE 0-17	0.0001	0.0003	0.9339	0.00
221	KNEE PROCEDURES AGE >=70 AND/OR C.C.	0.0138*	-0.0068	1.2727	0.11
222	KNEE PROCEDURES AGE <70 W/O C.C.	0.0067	-0.0161	0.9897	0.10
223	UPPER EXTREMITY PROC EXC HUMERUS & HAND AGE >=70 AND/OR C.C.	0.0072	0.0120	1.0723	0.08
224	UPPER EXTREMITY PROC EXC HUMERUS & HAND AGE <70 W/O C.C.	0.0019	-0.0030	0.8952	0.06
225	FOOT PROCEDURES	0.0058	-0.0134	0.6476	0.30
226	SOFT TISSUE PROCEDURES AGE >=70 AND/OR C.C.	-0.0019	0.0085*	0.7984	0.06
227	SOFT TISSUE PROCEDURES AGE <70 W/O C.C.	-0.0041	-0.0010	0.6337	0.05
228	GANGLION (HAND) PROCEDURES	-0.0045*	0.0019	0.3626	0.02
229	HAND PROCEDURES EXCEPT GANGLION	-0.0051	-0.0195	0.5998	0.19
230	LOCAL EXCISION & REMOVAL OF INT FIX DEVICES OF HIP & FEMUR	-0.0061*	-0.0013	1.3594	0.07
231	LOCAL EXCISION & REMOVAL OF INT FIX DEVICES EXCEPT HIP & FEMUR	-0.0003	-0.0084	0.9519	0.14
232	ARTHROSCOPY	0.0000	-0.0072*	0.6063	0.02
233	OTHER MUSCULOSKELET SYS & CONN TISS O.R. PROC AGE >=70 &/OR C.C.	-0.0033	0.0067	1.7737	0.10
234	OTHER MUSCULOSKELET SYS & CONN TISS O.R. PROC AGE <70 W/O C.C.	-0.0052*	0.0033	1.2454	0.05
235	FRACTURES OF FEMUR	-0.0040	0.0024	1.7586	0.07
236	FRACTURES OF HIP & PELVIS	-0.0127*	0.0315*	1.3855	0.42
237	SPRAINS, STRAINS, & DISLOCATIONS OF HIP, PELVIS & THIGH	-0.0002	0.0029	0.7929	0.03
238	OSTEOMYELITIS	0.0017	0.0070*	1.5511	0.03
239	PATHOLOGICAL FRACTURES & MUSCULO-SKELETAL & CONN.TISS.MALIGNANCY	0.0204	0.1211*	1.0979	0.43
240	CONNECTIVE TISSUE DISORDERS AGE >=70 AND/OR C.C.	-0.0022	-0.0177	0.9709	0.24
241	CONNECTIVE TISSUE DISORDERS AGE <70 W/O C.C.	-0.0066	-0.0101	0.9048	0.09
242	SEPTIC ARTHRITIS	0.0009	0.0058*	1.5880	0.01
243	MEDICAL BACK PROBLEMS	0.0160	-0.0534	0.7551	1.88
244	BONE DISEASES & SEPTIC ARTHROPATHY AGE >=70 AND/OR C.C.	-0.0307*	-0.0902*	0.7792	0.54
245	BONE DISEASES & SEPTIC ARTHROPATHY AGE <70 W/O C.C.	-0.0124*	-0.0107*	0.7177	0.09
246	NON-SPECIFIC ARTHROPATHIES	-0.0035	-0.0164*	0.7147	0.07

DRG	Title	Change in % of Medicare Admissions in DRG: Trend	Change in % of Medicare Admissions in DRG: FY1984 Shift	DRG Weight	% of 1981 Medicare Admissions in DRG
247	SIGNS & SYMPTOMS OF MUSCULO-SKELETAL SYSTEM & CONN TISSUE	-0.0029	-0.0288*	0.6559	0.21
248	TENDONITIS, MYOSITIS & BURSITIS	-0.0006	-0.0126*	0.6136	0.12
249	AFTERCARE, MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE	-0.0013	0.0018	1.0203	0.07
250	FX,SPRNS,STRNS & DISL OF FOREARM, HAND,FOOT AGE >=70 &/OR C.C.	-0.0134	-0.0032	0.7428	0.18
251	FX,SPRNS,STRNS & DISL OF FOREARM, HAND,FOOT AGE 18-69 W/O C.C.	-0.0055	0.0020	0.5964	0.05
252	FX,SPRNS,STRNS & DISL OF FOREARM, HAND,FOOT AGE 0-17	-0.0003	0.0005	0.3533	0.00
253	FX,SPRNS,STRNS & DISL OF UPARM, LOWLEG EX FOOT AGE >=70 &/OR C.C.	-0.0209	0.0117	0.7466	0.46
254	FX,SPRNS,STRNS & DISL OF UPARM, LOWLEG EX FOOT AGE 18-69 W/O C.C.	-0.0118*	0.0024	0.6258	0.11
255	FX,SPRNS,STRNS & DISL OF UPARM, LOWLEG EX FOOT AGE 0-17	-0.0001	0.0001	0.4687	0.00
256	OTHER DIAGNOSES OF MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE	0.0034	-0.0103	0.8706	0.13
257	TOTAL MASTECTOMY FOR MALIGNANCY AGE >=70 AND/OR C.C.	-0.0024	0.0395*	1.1085	0.31
258	TOTAL MASTECTOMY FOR MALIGNANCY AGE <70 W/O C.C.	-0.0022	-0.0097	1.0729	0.08
259	SUBTOTAL MASTECTOMY FOR MALIGNANCY AGE >=70 AND/OR C.C.	0.0015	0.0044	1.0141	0.06
260	SUBTOTAL MASTECTOMY FOR MALIGNANCY AGE <70	0.0002	-0.0004	0.9325	0.01
261	BREAST PROC FOR NON-MALIG EXCEPT BIOPSY & LOC EXC	-0.0011	-0.0001	0.7329	0.06
262	BREAST BIOPSY & LOCAL EXCISION FOR NON-MALIGNANCY	-0.0150*	0.0085*	0.4617	0.19
263	SKIN GRAFTS FOR SKIN ULCER OR CELLULITIS AGE >=70 AND/OR C.C.	0.0145*	0.0213*	2.4737	0.14
264	SKIN GRAFTS FOR SKIN ULCER OR CELLULITIS AGE <70 W/O C.C.	-0.0031	0.0009	2.2031	0.03
265	SKIN GRAFTS EXCEPT FOR SKIN ULCER OR CELLULITIS WITH C.C.	0.0007	0.0054	1.4959	0.04
266	SKIN GRAFTS EXCEPT FOR SKIN ULCER OR CELLULITIS W/O C.C.	-0.0074*	-0.0091	0.9485	0.13
267	PERIANAL & PILONIDAL PROCEDURES	-0.0005	0.0011	0.6113	0.01
268	SKIN,SUBCUTANEOUS TISSUE & BREAST PLASTIC PROCEDURES	-0.0027	-0.0034	0.5388	0.05
269	OTHER SKIN, SUBCUT TISS & BREAST O.R. PROC AGE >=70 &/OR C.C.	-0.0175*	-0.0096	0.9947	0.24
270	OTHER SKIN, SUBCUT TISS & BREAST O.R. PROC AGE <70 W/O C.C.	-0.0150*	-0.0049	0.8123	0.11
271	SKIN ULCERS	-0.0044	0.0197	1.3802	0.19

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272	MAJOR SKIN DISORDERS AGE >=70 AND/OR C.C.	-0.0010	-0.0147*	0.8620	0.14
273	MAJOR SKIN DISORDERS AGE <70 W/O C.C.	-0.0035*	-0.0024*	0.8286	0.03
274	MALIGNANT BREAST DISORDERS AGE >=70 AND/OR C.C.	-0.0204*	-0.0280*	1.0108	0.17
275	MALIGNANT BREAST DISORDERS AGE <70 W/O C.C.	-0.0024	-0.0035	0.9014	0.02
276	NON-MALIGANT BREAST DISORDERS	-0.0007	0.0006	0.6066	0.02
277	CELLULITIS AGE >=70 AND/OR C.C.	0.0187	0.0501*	0.8863	0.38
278	CELLULITIS AGE 18-69 W/O C.C.	-0.0041	0.0013	0.8096	0.10
279	CELLULITIS AGE 0-17	-0.0001	-0.0002	0.4789	0.00
280	TRAUMA TO THE SKIN, SUBCUT TISS & BREAST AGE >=70 &/OR C.C.	-0.0245*	-0.0383*	0.6201	0.47
281	TRAUMA TO THE SKIN, SUBCUT TISS & BREAST AGE 18-69 W/O C.C.	-0.0081*	-0.0061	0.5377	0.07
282	TRAUMA TO THE SKIN, SUBCUT TISS & BREAST AGE 0-17	-0.0001	-0.0000	0.3460	0.00
283	MINOR SKIN DISORDERS AGE >=70 AND/OR C.C.	-0.0019	-0.0219*	0.6394	0.15
284	MINOR SKIN DISORDERS AGE <70 W/O C.C.	-0.0065*	-0.0015	0.5971	0.04
285	AMPUTATIONS FOR ENDOCRINE, NUTRITIONAL & METABOLIC DISORDERS	0.0027	0.0145*	2.8658	0.10
286	ADRENAL & PITUITARY PROCEDURES	-0.0007	0.0026	2.8952	0.01
287	SKIN GRAFTS & WOUND DEBRIDE FOR ENDOC,NUTRIT & METAB DISORDERS	0.0051	0.0081	2.8143	0.04
288	O.R. PROCEDURES FOR OBESITY	-0.0001	-0.0011	1.5695	0.01
289	PARATHYROID PROCEDURES	0.0005	0.0012	1.3736	0.02
290	THYROID PROCEDURES	0.0006	-0.0083	0.8549	0.08
291	THYROGLOSSAL PROCEDURES	0.0002	-0.0006	0.4909	0.00
292	OTHER ENDOCRINE, NUTRIT & METAB O.R. PROC AGE >70 &/OR C.C.	0.0054*	-0.0082*	2.0307	0.05
293	OTHER ENDOCRINE, NUTRIT & METAB O.R. PROC AGE <70 W/O C.C.	-0.0008	-0.0014	1.4951	0.01
294	DIABETES AGE >=36	-0.0427	-0.2044*	0.8087	1.69
295	DIABETES AGE 0-35	-0.0018	-0.0002	0.7457	0.03
296	NUTRITIONAL & MISC. METABOLIC DISORDERS AGE >=70 AND/OR C.C.	0.0891*	0.2581*	0.8979	1.01
297	NUTRITIONAL & MISC. METABOLIC DISORDERS AGE 18-69 W/O C.C.	-0.0030	-0.0031	0.7923	0.10
298	NUTRITIONAL & MISC. METABOLIC DISORDERS AGE 0-17	0.0003	-0.0003	0.7538	0.00
299	INBORN ERRORS OF METABOLISM	-0.0017	0.0018	0.9407	0.02
300	ENDOCRINE DISORDERS AGE >=70 AND/OR C.C.	-0.0002	-0.0077	0.9731	0.16

DRG	Title	Change in % of Medicare Admissions in DRG		DRG Weight	% of 1981 Medicare Admissions in DRG
		Trend	FY1984 Shift		
301	ENDOCRINE DISORDERS AGE <70 W/O C.C.	-0.0057	0.0000	0.8143	0.04
302	KIDNEY TRANSPLANT	0.0007	0.0045	6.6322	0.02
303	KIDNEY,URETER & MAJOR BLADDER PROCEDURE FOR NEOPLASM	-0.0018	0.0088*	2.5397	0.12
304	KIDNEY,URETER & MAJ BLDR PROC FOR NON-MALIG AGE >=70 &/OR C.C.	0.0056	0.0170*	1.7952	0.17
305	KIDNEY,URETER & MAJ BLDR PROC FOR NON-MALIG AGE <70 W/O C.C.	-0.0049*	-0.0039	1.7043	0.07
306	PROSTATECTOMY AGE >=70 AND/OR C.C.	-0.0079	0.0269*	1.1399	0.20
307	PROSTATECTOMY AGE <70 W/O C.C.	-0.0052*	-0.0009	0.9513	0.04
308	MINOR BLADDER PROCEDURES AGE >=70 AND/OR C.C.	0.0004	-0.0072	1.0441	0.16
309	MINOR BLADDER PROCEDURES AGE <70 W/O C.C.	-0.0021	-0.0082*	0.9290	0.04
310	TRANSURETHRAL PROCEDURES AGE >=70 AND/OR C.C.	-0.0094	0.0414*	0.7071	0.50
311	TRANSURETHRAL PROCEDURES AGE <70 W/O C.C.	-0.0103*	-0.0059	0.5871	0.14
312	URETHRAL PROCEDURES, AGE >=70 AND/OR C.C.	0.0023	-0.0109	0.7424	0.09
313	URETHRAL PROCEDURES, AGE 18-69 W/O C.C.	-0.0023	-0.0033	0.6897	0.03
314	URETHRAL PROCEDURES, AGE 0-17	0.0000	0.0003	0.4368	0.00
315	OTHER KIDNEY & URINARY TRACT O.R. PROCEDURES	-0.0063	0.0069	2.4884	0.11
316	RENAL FAILURE W/O DIALYSIS	-0.0090	0.0085	1.3314	0.37
317	RENAL FAILURE WITH DIALYSIS	-0.0109*	0.0054	0.2385	0.03
318	KIDNEY & URINARY TRACT NEOPLASMS AGE >=70 AND/OR C.C.	-0.0090*	-0.0071	0.9142	0.17
319	KIDNEY & URINARY TRACT NEOPLASMS AGE <70 W/O C.C.	-0.0032*	-0.0029*	0.7942	0.02
320	KIDNEY & URINARY TRACT INFECTIONS AGE >=70 AND/OR C.C.	0.0564*	-0.0390	0.8123	1.10
321	KIDNEY & URINARY TRACT INFECTIONS AGE 18-69 W/O C.C.	-0.0200*	-0.0198	0.6803	0.18
322	KIDNEY & URINARY TRACT INFECTIONS AGE 0-17	-0.0002	0.0003	0.4553	0.00
323	URINARY STONES AGE >=70 AND/OR C.C.	-0.0063	0.0229	0.7131	0.25
324	URINARY STONES AGE <70 W/O C.C.	-0.0066	-0.0124	0.5472	0.12
325	KIDNEY & URINARY TRACT SIGNS & SYMPTOMS AGE >=70 AND/OR C.C.	-0.0175*	-0.0087	0.7247	0.29
326	KIDNEY & URINARY TRACT SIGNS & SYMPTOMS AGE 18-69 W/O C.C.	-0.0062	-0.0094	0.5875	0.06

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327	KIDNEY & URINARY TRACT SIGNS & SYMPTOMS AGE 0-17	-0.0004	0.0002	0.5027	0.00
328	URETHRAL STRICTURE AGE >=70 AND/OR C.C.	-0.0121*	-0.0034	0.6508	0.10
329	URETHRAL STRICTURE AGE 18-69 W/O C.C.	-0.0052*	-0.0005	0.5326	0.02
330	URETHRAL STRICTURE AGE 0-17	0.0000	0.0001	0.2817	0.00
331	OTHER KIDNEY & URINARY TRACT DIAGNOSES AGE >=70 AND/OR C.C.	-0.0012	-0.0328	0.8919	0.37
332	OTHER KIDNEY & URINARY TRACT DIAGNOSES AGE 18-69 W/O C.C.	-0.0117*	-0.0046*	0.7763	0.08
333	OTHER KIDNEY & URINARY TRACT DIAGNOSES AGE 0-17	-0.0004	0.0001	0.5146	0.00
334	MAJOR MALE PELVIC PROCEDURES WITH C.C.	-0.0009	0.0159*	1.5612	0.07
335	MAJOR MALE PELVIC PROCEDURES W/O C.C.	-0.0140*	0.0000	1.3590	0.09
336	TRANSURETHRAL PROSTATECTOMY AGE >=70 AND/OR C.C.	0.0122	0.0476	1.0079	1.44
337	TRANSURETHRAL PROSTATECTOMY AGE <70 W/O C.C.	-0.0282*	-0.0224	0.8491	0.36
338	TESTES PROCEDURES, FOR MALIGNANCY	0.0038	-0.0009	0.9069	0.08
339	TESTES PROCEDURES, NON-MALIGNANT AGE >=18	-0.0006	-0.0109	0.6093	0.11
340	TESTES PROCEDURES, NON-MALIGNANT AGE 0-17	0.0001	-0.0002	0.4381	0.00
341	PENIS PROCEDURES	0.0052	0.0010	0.9983	0.04
342	CIRCUMCISION AGE >=18	-0.0077*	0.0047	0.4228	0.05
343	CIRCUMCISION AGE 0-17	-0.0000	0.0003	0.3828	0.00
344	OTHER MALE REPRODUCTIVE SYSTEM O.R. PROCEDURES FOR MALIGNANCY	0.0008	-0.0065	1.1204	0.05
345	OTHER MALE REPRODUCTIVE SYSTEM O.R. PROC EXCEPT FOR MALIG	-0.0031	-0.0053	0.8334	0.05
346	MALIGNANCY, MALE REPRODUCTIVE SYSTEM, AGE >=70 AND/OR C.C.	-0.0229*	-0.0426*	0.9395	0.34
347	MALIGNANCY, MALE REPRODUCTIVE SYSTEM, AGE <70 W/O C.C.	-0.0055	-0.0057	0.8304	0.04
348	BENIGN PROSTATIC HYPERTROPHY AGE >=70 AND/OR C.C.	-0.0194*	0.0066	0.8864	0.22
349	BENIGN PROSTATIC HYPERTROPHY AGE <70 W/O C.C.	-0.0067*	-0.0121*	0.6998	0.06
350	INFLAMMATION OF THE MALE REPRODUCTIVE SYSTEM	-0.0055*	-0.0075	0.6096	0.12
351	STERILIZATION, MALE	0.0001	0.0000	0.2655	0.00
352	OTHER MALE REPRODUCTIVE SYSTEM DIAGNOSES	-0.0007	-0.0051*	0.6385	0.02
353	PELVIC EVISCERATION, RADICAL HYSTERECTOMY & VULVECTOMY	0.0006	-0.0020	1.9376	0.02

DRG	Title	Change in % of Medicare Admissions in DRG		DRG Weight	% of 1981 Medicare Admissions in DRG
		Trend	FY1984 Shift		
354	NON-RADICAL HYSTERECTOMY AGE >=70 AND/OR C.C.	-0.0003	0.0283*	1.1108	0.29
355	NON-RADICAL HYSTERECTOMY AGE <70 W/O C.C.	-0.0053*	-0.0075	1.0156	0.17
356	FEMALE REPRODUCTIVE SYSTEM RECONSTRUCTIVE PROCEDURES	-0.0043	0.0218	0.8460	0.25
357	UTERUS & ADENEXA PROCEDURES FOR MALIGNANCY	0.0005	0.0001	1.9188	0.03
358	UTERUS & ADENEXA PROC FOR NON-MALIGNANCY EXCEPT TUBAL INTERRUPT	-0.0001	0.0017	1.0890	0.05
359	TUBAL INTERRUPTION FOR NON-MALIGNANCY	-0.0003	-0.0001	0.4279	0.00
360	VAGINA, CERVIX & VULVA PROCEDURES	-0.0105*	0.0014	0.5985	0.11
361	LAPAROSCOPY & ENDOSCOPY (FEMALE) EXCEPT TUBAL INTERRUPTION	-0.0006	-0.0021	0.4864	0.01
362	LAPAROSCOPIC TUBAL INTERRUPTION	-0.0005*	0.0002	0.3126	0.00
363	D&C,CONIZATION & RADIO-IMPLANT, FOR MALIGNANCY	-0.0075	-0.0055	0.6516	0.11
364	D&C,CONIZATION EXCEPT FOR MALIGNANCY	-0.0174*	-0.0140	0.4028	0.22
365	OTHER FEMALE REPRODUCTIVE SYSTEM O.R. PROCEDURES	-0.0000	-0.0050	1.7965	0.04
366	MALIGNANCY, FEMALE REPRODUCTIVE SYSTEM AGE >=70 AND/OR C.C.	-0.0161*	-0.0118	0.8444	0.16
367	MALIGNANCY, FEMALE REPRODUCTIVE SYSTEM AGE <70 W/O C.C.	-0.0075*	0.0003	0.5786	0.04
368	INFECTIONS, FEMALE REPRODUCTIVE SYSTEM	-0.0004	-0.0000	0.7944	0.02
369	MENSTRUAL & OTHER FEMALE REPRODUCTIVE SYSTEM DISORDERS	-0.0003	-0.0146*	0.6959	0.07
370	CESAREAN SECTION WITH C.C.	0.0003	-0.0001	0.9912	0.00
371	CESAREAN SECTION W/O C.C.	-0.0011	0.0000	0.7535	0.01
372	VAGINAL DELIVERY WITH COMPLICATING DIAGNOSES	-0.0008*	0.0011*	0.5534	0.00
373	VAGINAL DELIVERY W/O COMPLICATING DIAGNOSES	-0.0054*	0.0025	0.4063	0.03
374	VAGINAL DELIVERY WITH STERILIZATION AND/OR D&C	-0.0009	0.0012	0.5492	0.00
375	VAGINAL DELIVERY WITH O.R. PROC EXCEPT STERIL AND/OR D&C	0.0002	0.0000	0.6889	0.00
376	POSTPARTUM DIAGNOSES W/O O.R. PROCEDURE	0.0002	-0.0004	0.4158	0.00
377	POSTPARTUM DIAGNOSES WITH O.R. PROCEDURE	0.0001	0.0001	0.4761	0.00
378	ECTOPIC PREGNANCY	-0.0001	0.0009*	0.8094	0.00
379	THREATENED ABORTION	0.0002	0.0001	0.3169	0.00
380	ABORTION W/O D&C	-0.0002	0.0001	0.2705	0.00
381	ABORTION WITH D&C	-0.0011*	0.0012	0.3602	0.00

DRG	Title	Change in % of Medicare Admissions in DRG: Trend	Change in % of Medicare Admissions in DRG: FY1984 Shift	DRG Weight	% of 1981 Medicare Admissions in DRG
382	FALSE LABOR	-0.0010	0.0011	0.1842	0.00
383	OTHER ANTEPARTUM DIAGNOSES WITH MEDICAL COMPLICATIONS	-0.0007	0.0018	0.4317	0.00
384	OTHER ANTEPARTUM DIAGNOSES W/O MEDICAL COMPLICATIONS	-0.0003	-0.0000	0.3245	0.00
385	NEONATES, DIED OR TRANSFERRED	-0.0001	-0.0006	0.6883	0.00
386	EXTREME IMMATURITY, NEONATE	-0.0001	-0.0005	3.6863	0.00
387	PREMATURITY WITH MAJOR PROBLEMS	-0.0002	0.0005	1.8459	0.00
388	PREMATURITY W/O MAJOR PROBLEMS	-0.0002	0.0003	1.1693	0.00
389	FULL TERM NEONATE WITH MAJOR PROBLEMS	-0.0001	-0.0014	0.5482	0.00
390	NEONATES WITH OTHER SIGNIFICANT PROBLEMS	-0.0002	-0.0017	0.3523	0.00
391	NORMAL NEWBORNS	-0.0054*	0.0074*	0.2241	0.02
392	SPLENECTOMY AGE >=18	-0.0002	0.0037*	2.7746	0.02
393	SPLENECTOMY AGE 0-17	0.0004	0.0000	1.5366	
394	OTHER O.R. PROCEDURES OF THE BLOOD & BLOOD FORMING ORGANS	-0.0014	-0.0036	1.1146	0.03
395	RED BLOOD CELL DISORDERS AGE >=18	0.0061	-0.0355	0.7839	0.82
396	RED BLOOD CELL DISORDERS AGE 0-17	-0.0000	-0.0004	0.6295	0.00
397	COAGULATION DISORDERS	0.0075*	0.0032	0.9863	0.07
398	RETICULOENDOTHELIAL & IMMUNITY DISORDERS AGE >=70 AND/OR C.C.	0.0056	-0.0049	0.8900	0.09
399	RETICULOENDOTHELIAL & IMMUNITY DISORDERS AGE <70 W/O C.C.	-0.0002	-0.0018	0.8459	0.02
400	LYMPHOMA OR LEUKEMIA WITH MAJOR O.R. PROCEDURE	-0.0049*	0.0120*	2.8272	0.07
401	LYMPHOMA OR LEUKEMIA WITH MINOR O.R. PROC AGE >=70 AND/OR C.C.	0.0000	0.0079*	1.2409	0.07
402	LYMPHOMA OR LEUKEMIA WITH MINOR O.R. PROCEDURE AGE <70 W/O C.C.	-0.0021	-0.0007	1.1316	0.02
403	LYMPHOMA OR LEUKEMIA AGE >=70 A ND/OR C.C.	-0.0060	-0.0408*	1.1715	0.60
404	LYMPHOMA OR LEUKEMIA AGE 18-69 W/O C.C.	-0.0123*	-0.0190*	1.1787	0.12
405	LYMPHOMA OR LEUKEMIA AGE 0-17	0.0002	-0.0001	1.0517	0.00
406	MYELOPROLIF DISORD OR POORLY DIFF NEOPLASM W MAJ O.R.PROC & C.C.	0.0022	-0.0049	2.2671	0.04
407	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W MAJ O.R.PROC W/O C.C.	-0.0051*	-0.0005	2.1366	0.04
408	MYELOPROLIF DISORD OR POORLY DIFF NEOPL WITH MINOR O.R.PROC	0.0007	0.0023	1.1389	0.06
409	RADIOTHERAPY	0.0092	-0.0086	0.8134	0.06

DRG	Title	Change in % of Medicare Admissions in DRG: Trend	Change in % of Medicare Admissions in DRG: FY1984 Shift	DRG Weight	% of 1981 Medicare Admissions in DRG
410	CHEMOTHERAPY	0.1150*	0.0985*	0.3527	0.54
411	HISTORY OF MALIGNANCY W/O ENDOSCOPY	-0.0106*	-0.0291*	0.7221	0.09
412	HISTORY OF MALIGNANCY WITH ENDOSCOPY	-0.0124*	-0.0174*	0.3400	0.09
413	OTHR MYELOPROLIF DISORD OR POORLY DIFF NEOPL DX AGE>=70 &/OR C.C	-0.0086	-0.0316*	1.0975	0.32
414	OTHR MYELOPROLIF DISORD OR POORLY DIFF NEOPL DX AGE<70 W/O C.C.	-0.0094*	-0.0084*	1.0359	0.07
415	O.R. PROCEDURE FOR INFECTIOUS & PARASITIC DISEASES	0.0089*	0.0342*	3.0027	0.10
416	SEPTECEMIA AGE >=18	0.0524*	0.1898*	1.5504	0.27
417	SEPTECEMIA AGE 0-17	-0.0000	0.0000	0.7152	0.00
418	POSTOPERATIVE & POST-TRAUMATIC INFECTIONS	0.0016	0.0156*	0.9968	0.07
419	FEVER OF UNKNOWN ORIGIN AGE >=70 AND/OR C.C.	0.0051	-0.0015	0.8628	0.13
420	FEVER OF UNKNOWN ORIGIN AGE 18-69 W/O C.C.	-0.0014	-0.0043*	0.8022	0.03
421	VIRAL ILLNESS AGE >=18	0.0026	-0.0231	0.6045	0.16
422	VIRAL ILLNESS & FEVER OF UNKNOWN ORIGIN AGE 0-17	-0.0001	-0.0003	0.4360	0.00
423	OTHER INFECTIOUS & PARASITIC DISEASES DIAGNOSES	0.0035	0.0089	1.2107	0.04
424	O.R. PROCEDURES WITH PRINCIPAL DIAGNOSIS OF MENTAL ILLNESS	0.0056	-0.0138*	2.1938	0.06
425	ACUTE ADJUST REACT & DISTURBANCES OF PSYCHOSOCIAL DYSFUNCTION	-0.0021	0.0026	0.6812	0.17
426	DEPRESSIVE NEUROSES	-0.0157	-0.0144	0.9495	0.34
427	NEUROSES EXCEPT DEPRESSIVE	0.0020	-0.0033	0.7678	0.03
428	DISORDERS OF PERSONALITY & IMPULSE CONTROL	-0.0010	-0.0016	0.9741	0.03
429	ORGANIC DISTURBANCES & MENTAL RETARDATION	-0.0194	-0.0744*	0.9523	0.65
430	PSYCHOSES	0.0922*	0.0914*	1.0934	0.70
431	CHILDHOOD MENTAL DISORDERS	0.0002	-0.0004	2.2519	0.01
432	OTHER DIAGNOSES OF MENTAL DISORDERS	-0.0013	0.0024	1.0525	0.01
433	SUBSTANCE USE & SUBST INDUCE ORGANIC MENTAL DISORDERS, LEFT AMA	-0.0050*	0.0039	0.4457	0.05
434	DRUG DEPENDENCE	0.0003	0.0033	1.0404	0.01
435	DRUG USE EXCEPT DEPENDENCE	-0.0006	0.0024	1.0738	0.01
436	ALCOHOL DEPENDENCE	-0.0053	0.0210*	0.8853	0.07
437	ALCOHOL USE EXCEPT DEPENDENCE	-0.0014	-0.0004	0.6183	0.02
438	ALCOHOL & SUBSTANCE INDUCED ORGANIC MENTAL SYNDROME	-0.0356*	0.0260*	0.8420	0.34
439	SKIN GRAFTS FOR INJURIES	0.0006	0.0009	1.8219	0.02
440	WOUND DEBRIDEMENTS FOR INJURIES	0.0011	0.0085*	1.4807	0.03
441	HAND PROCEDURES FOR INJURIES	-0.0019	0.0028	0.7180	0.01

DRG	Title	Change in % of Medicare Admissions in DRG: Trend	Change in % of Medicare Admissions in DRG: FY1984 Shift	DRG Weight	% of 1981 Medicare Admissions in DRG
442	OTHER O.R. PROCEDURES FOR INJURIES AGE >=70 AND/OR C.C.	0.0235*	0.0441*	1.9026	0.23
443	OTHER O.R. PROCEDURES FOR INJURIES AGE <70 W/O C.C.	-0.0010	-0.0027	1.5211	0.07
444	MULTIPLE TRAUMA AGE >=70 AND/OR C.C.	-0.0010	0.0010	0.8830	0.06
445	MULTIPLE TRAUMA AGE 18-69 W/O C.C.	-0.0011	-0.0032*	0.7530	0.01
446	MULTIPLE TRAUMA AGE 0-17	0.0001	0.0000	0.4846	0.00
447	ALLERGIC REACTIONS AGE >=18	0.0028*	-0.0052*	0.4785	0.02
448	ALLERGIC REACTIONS AGE 0-17	0.0001	0.0001	0.3505	.
449	TOXIC EFFECTS OF DRUGS AGE >=70 AND/OR C.C.	0.0167	0.0158	0.7331	0.35
450	TOXIC EFFECTS OF DRUGS AGE 18-69 W/O C.C.	-0.0008	-0.0077	0.5957	0.08
451	TOXIC EFFECTS OF DRUGS AGE 0-17	0.0000	-0.0005	0.2912	0.00
452	COMPLICATIONS OF TREATMENT AGE >=70 AND/OR C.C.	0.0220*	0.0156	0.8492	0.14
453	COMPLICATIONS OF TREATMENT AGE <70 W/O C.C.	0.0004	-0.0047	0.9020	0.05
454	OTHER INJURIES, POISONINGS & TOXIC EFF DIAG AGE >=70 AND/OR C.C.	0.0072	-0.0119	0.8224	0.05
455	OTHER INJURIES, POISONINGS & TOXIC EFF DIAG AGE <70 W/O C.C.	0.0005	-0.0033	0.6185	0.01
456	BURNS, TRANSFERRED TO ANOTHER ACUTE CARE FACILITY	-0.0004	0.0012*	2.0902	0.00
457	EXTENSIVE BURNS	-0.0005	0.0014	6.8631	0.00
458	NON-EXTENSIVE BURNS WITH SKIN GRAFTS	-0.0018	0.0008	2.8572	0.02
459	NON-EXTENSIVE BURNS WITH WOUND DEBRIDEMENT & OTHER O.R. PROC	-0.0005	0.0019	2.7568	0.01
460	NON-EXTENSIVE BURNS W/O O.R. PROCEDURE	-0.0020	0.0004	1.4225	0.03
461	O.R. PROC WITH DIAGNOSES OF OTHER CONTACT WITH HEALTH SERVICES	-0.0080	-0.0006	1.6507	0.11
462	REHABILITATION	0.0057	0.0757*	1.8268	0.08
463	SIGNS & SYMPTOMS WITH C.C.	0.0006	-0.0089*	0.7702	0.12
464	SIGNS & SYMPTOMS W/O C.C.	-0.0080*	-0.0163*	0.7322	0.10
465	AFTERCARE WITH HISTORY OF MALIGNANCY AS SECONDARY DX	-0.0055*	0.0069	0.2071	0.05
466	AFTERCARE W/O HISTORY OF MALIGNANCY AS SECONDARY DX	-0.0039	0.0080	0.6377	0.04
467	OTHER FACTORS INFLUENCING HEALTH STATUS	-0.0473*	-0.0191	0.9799	0.32
468,	UNRELATED OR PROC	0.0022	-0.3146*	2.1037	1.94

* Coefficient statistically different from 0 at the 0.05 percent level.

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